



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

400 Seventh Street, S.W.  
Washington, D.C. 20590

Dear Crash Data Researchers/Users:

Thank you for choosing crash data from the National Highway Traffic Safety Administration (NHTSA) for your research or other use. The information contained in this motor vehicle crash report is collected, maintained and distributed in accordance with Public Law 89-564. In accordance with this Public Law, NHTSA is required not to release any case information until completion of quality control procedures. These procedures include a review of the case material to extract all names, licenses and registration numbers, non-coded interview material, non-research related researcher comments in the margins, non-factual data, and the production number portion of the vehicle identification number (VIN).

If you requested NHTSA to query its database files in order to identify a specific crash, then that query was made using non-personal descriptors you provided for use in our search. This motor vehicle crash may have been identified from a data search and matches the general, non-personal descriptors you provided, but we cannot confirm that this is the specific crash report you requested.

If you have any questions with regard to the above procedures, please contact the Field Operations Branch, Crash Investigation Division, National Center for Statistics and Analysis at 202-366-4820. Again, please be advised that we cannot confirm that this is the case that you have specifically requested nor can we certify the information to be correct.

\*\*\*    \*\*\*    \*\*\*



AUTO SAFETY HOTLINE  
(800) 424-9393  
Wash. D.C. Area 366-0123



**TRANSPORTATION SCIENCES CENTER  
ACCIDENT RESEARCH GROUP**

Division of Calspan SRL Corporation  
[REDACTED] New York [REDACTED]

**CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION  
CALSPAN CASE NO. 95-16  
VEHICLE: 1995 FORD ESCORT LX, STATION WAGON  
LOCATION: [REDACTED] PA  
DATE OF CRASH: [REDACTED] 1995**

Contract No. DTNH22-94-D-07058

Prepared for:

U.S. Department of Transportation  
National Highway Traffic Safety Administration  
Washington, D.C. 20590



## **DISCLAIMER**

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no responsibility for the contents or use thereof.

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.

The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.



# TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 95-16	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Calspan On-Site Air Bag Deployment Investigation Vehicle - 1995 Ford Escort LX, Station Wagon Location - ██████████ PA		5. Report Date: ██████████, 1995	
		6. Performing Organization Code	
7. Author(s) Accident Research Group		8. Performing Organization Report No.	
9. Performing Organization Name and Address Transportation Sciences Center Accident Research Group Division of Calspan Corporation ██████████ ██████████ New York ██████████		10. Work Unit No. 1115 (5340-5349)	
		11. Contract or Grant No. DTNH22-94-D-07058	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Washington, D.C. 20590		13. Type of Report and Period Covered Technical Report Crash Date: ██████████ 1995	
		14. Sponsoring Agency Code	
15. Supplementary Notes On-site investigation of an air bag deployment crash that resulted in fatal head injuries to a 22 day old infant. The infant was restrained in a rearward facing Cosco Touriva child restraint positioned in the right front of the vehicle. The child restraint was contacted by the passenger side air bag module cover flap and the deploying air bag.			
16. Abstract This on-site investigation focused on a 1995 Ford Escort that was involved in a moderately severe head-on, off-set crash with a 1991 Toyota Camry. The Escort was equipped with a supplemental air bag system which consisted of driver and passenger side air bags. As a result of the impact, the Escort's air bag system deployed.  The right front passenger of the Escort was a 22 day old infant female that was restrained in a rear-facing Cosco Touriva convertible child restraint positioned in the right front of the vehicle. The child restraint was reclined against the passenger side air bag module cover and was secured to the vehicle with the manual inertia activated lap belt. A locking clip was improperly affixed to the latchplate end of the belt webbing.  At impact, the driver and passenger side air bags deployed. The leading edge of the top mount passenger side air bag module cover flap and the deploying air bag contacted the ABS-type plastic shell of the child restraint. As a result, the shell fractured and the restraint was displaced rearward into the right front seat back. The infant sustained multiple skull fractures with brain matter exuding from the fracture sites, a brain stem contusion, subdural hematoma, brain lacerations, and a left rib fracture. She expired at a ██████████ Hospital approximately six hours following the crash.			
17. Key Words On-Site Investigation Driver and passenger side air bag deployment Rearward facing child restraint Multiple circumferential skull fractures		18. Distribution Statement General Public	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 35	22. Price



## **TABLE OF CONTENTS**

	<b><u>Page No.</u></b>
Summary	1
Crash Schematic	7
Crash Data	8
Ambience	8
Highway	8
Traffic Controls	9
Vehicles	9
Vehicle Damage	11
Automatic Restraint Systems	16
Child Restraint	19
Vehicle Velocity Estimates	21
Collision Sequence	21
Human Factors/Occupant Data	25
Driver Injuries	26
Driver Kinematics	26
Passenger Injuries	28
Passenger Kinematics	29
Passenger Side Air Bag Deactivation Switch Criteria	33
Attachment A: On-Scene Photographs	A1
Attachment B: Selected Prints	B1



## **TABLE OF CONTENTS (CONT'D.)**

	<b><u>Page No.</u></b>
Attachment C: Police Accident Report	C1
Attachment D: CRASHPC Output	D1
Attachment E: NASS Vehicle Forms ( <i>NOT AVAILABLE</i> )	E1
Attachment F: NASS Occupant Forms	F1
Attachment G: Ford Escort Owner's Manual	G1
Attachment H: Cosco Touriva Instructional Manual	H1



# **CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION**

**CALSPAN CASE NO. 95-16**

**VEHICLE: 1995 FORD ESCORT LX, STATION WAGON**

**LOCATION: [REDACTED], PA**

**DATE: [REDACTED], 1995**

## **SUMMARY**

This on-site investigation focused on a 1995 Ford Escort station wagon that was involved in an off-set, head-on crash that occurred on a rural two lane road in [REDACTED], PA. The Ford Escort was equipped with automatic, 2-point motorized shoulder restraints with manual lap belts in the front outboard seated positions and a supplemental air bag system that consisted of driver and passenger side bags. The air bags deployed as a result of the head-on crash with a 1991 Toyota Camry. The Escort was occupied by a 34 year old female driver and her 22 day old female infant. Her infant daughter was positioned in a [REDACTED] convertible child restraint that was placed in a rearward facing mode against the passenger side air bag module cover flap. As the air bag system deployed, the passenger side module cover flap and the deploying air bag contacted the upper aspect of the ABS-type plastic shell of the child restraint. The contact fractured the plastic shell and displaced the restraint rearward into the right front seat back. As a result of air bag deployment against the child restraint, the infant sustained multiple circumferential skull fractures with brain matter exuding from the fracture sites (AIS-4), a brain stem contusion (AIS-5), massive subdural hematoma (AIS-5), subarachnoid hemorrhage (AIS-3), subgaleal hemorrhage (AIS-1), and a left third rib fracture (AIS-1). She was transported by helicopter to a [REDACTED] Hospital where she expired approximately 6 hours following the crash. The driver was wearing the automatic shoulder restraint, however, she was not wearing the manual lap belt. She sustained multiple fractures and was admitted to a local hospital for treatment of her injuries.

The crash occurred on a two lane road on [REDACTED], 1995, during daylight hours. The asphalt road surface was straight with a negative grade and was posted with a 72 km/h (45 mph) speed limit for eastbound traffic. The daylight conditions were clear and dry.

The crash sequence involved four vehicles and four impact events, with two of the events involving the 1995 Ford Escort LX, 4 dr. station wagon. The Ford Escort was manufactured on [REDACTED] 1995, and was identified by vehicle identification number (VIN) [REDACTED]. The Escort had an odometer reading of 5169.7 km (3212.4 miles) and was purchased approximately 3 months prior to the crash. In addition to the child restraint in the right front position, the vehicle contained an infant carrier that was placed in the rear seat area and a folding-type stroller that was positioned in the cargo area behind the rear seat. Several warning labels were affixed to the sunvisors and headliner of the vehicle which advised the occupants of precautions relating to the manual and automatic restraint systems. The outboard surface of the visors contained a label which advised the following:

### **AIR BAG**

See Other Side.



The inside surface of the visors (side against the headliner) contained a warning label which advised the following:

- For maximum safety protection in all types of crashes, you must always wear your safety belt.
  - Do not install rearward-facing child seats in any front passenger seat position.
  - Do not sit or lean unnecessarily close to the air bag.
  - Do not place any objects over the air bag or between the air bag and yourself.
- See Owner Manual for further information and explanations.

A third warning label was affixed to the headliner between the visors which advised the following:

**WARNING**  
**Fasten Lap Belt**

The at-fault vehicle in the crash was a 1991 Toyota Camry, 4 dr. sedan. The vehicle was equipped with automatic, motorized shoulder belts in the front outboard seated positions and manual lap belts. The vehicle was manufactured in [REDACTED] 1991, and was identified by VIN [REDACTED]. The Toyota initially struck the left rear side area of a 1987 Buick LeSabre, 4 dr. sedan. (This vehicle was not involved in an impact sequence with the Ford Escort.) The fourth vehicle involved in the crash was a 1982 Chevrolet Monte Carlo. This vehicle had an extremely minor impact sequence with the left side of the Ford Escort which did not result in residual damage.

The Toyota Camry was traveling in a westerly direction on the two lane rural road at an estimated speed of 48 km/h (30 mph). The 65 year old female driver of the vehicle had completed her assigned work shift and was en route to her residence. A witness who was traveling behind the Toyota Camry reported to the police that she had allowed her vehicle to drift across the centerline of the roadway at several points. The 1987 Buick LeSabre was traveling in an easterly direction with the Ford Escort traveling several car lengths behind the Buick. The Monte Carlo was also traveling in an eastbound direction at an estimated distance of 60 m (200') behind the Ford Escort. There was an additional witness who was driving a noncontact vehicle ahead of the Buick LeSabre. This witness confirmed the lateral drift of the Toyota Camry across the centerline and into the eastbound travel lane. This witness stated to the investigating police officer that he swerved to the right to avoid contact with the Toyota.

The left frontal area of the Toyota Camry impacted the left rear side area of the Buick LeSabre in a sideswipe-type configuration. The contact damage on the Buick LeSabre began on the left rear door 179.1 cm (70.5") rearward of the right front axle and continued 182.9 cm (72.0") rearward to the left rear bumper corner. The maximum extent of crush was 14.2 cm (5.6") located on the quarter panel at the rearward aspect of the wheel opening. The impact, which occurred rearward of the Buick's center of gravity, induced a counterclockwise (CCW) yaw and displaced the vehicle off the right (south) roadedge. The Buick subsequently impacted a utility pole that was located 3.8 m (12'6") outboard of the roadedge with the right rear quarter panel. The pole impact resulted in 19.1 cm (7.5") of maximum crush and redirected the vehicle in a clockwise (CW) direction. The Buick came to rest straddling the south edgeline 3 m (10.0') east of the struck utility pole.



The initial impact with the Buick LeSabre probably redirected the Toyota Camry in a CW direction on a path that was approximately parallel to the travel lanes. The driver of the Ford Escort steered in a CW direction and braked with sufficient force to lock the right front wheel of her vehicle in an attempt to avoid, or reduce the severity of the impending crash. The right front skid mark extended for a distance of 4.0 m (13.0") and angled slightly from the travel lane to the south edgeline. There was no evidence of avoidance action by the driver of the Toyota.

The left frontal area of the Toyota impacted the left front corner of the Ford Escort in an off-set head-on configuration. The resultant directions of force were within the 12 o'clock sector for both vehicles. The direct contact damage on the Toyota, which overlapped the initial impact sequence with the Buick, began 23.5 cm (9.25") right of center and extended 97.2 cm (38.25") to the left front corner. Maximum crush was 67.8 cm (26.7") located at the left corner of the front bumper. The Ford Escort sustained 74.3 cm (29.25") of maximum crush located at the left front bumper corner. The direct contact damage on the Escort began 19.3 cm (7.6") left of center and extended 57.2 cm (22.5") to the left bumper corner. The damage and trajectory algorithm of the CRASHPC program output computed total velocity changes of 33 km/h (21 mph) for the Ford Escort and 31 km/h (19 mph) for the Toyota Camry. As a result of the impact induced deceleration, the Ford Escort's supplemental driver and passenger side air bag system deployed.

As the vehicle's crushed to maximum engagement, the off-set impact configuration produced CCW rotation to both vehicles. The Ford Escort was rotated 62 degrees CCW and was displaced 3.0 m (10.0') southwest of the point of impact as it came to rest off-road, nearly perpendicular to the travel lanes with the front tires resting on the south edgeline. The Toyota Camry rotated 103 degrees CCW and came to rest with its center of gravity straddling the centerline of the roadway. At rest, the Toyota was facing in a southerly direction toward the final rest position of the Escort.

The driver of the Chevrolet Monte Carlo stated to the investigating police officer that she heard the sound of a loud crash as she traversed the hillcrest that was located 24.4 m (80.0') west of the point of impact between the Toyota and the Ford Escort. She immediately detected the involved vehicles in the eastbound travel lane and braked with sufficient force to lock the wheels of her vehicle. The Monte Carlo initiated a CW yaw as it skidded 11.4 m (37.3') and yawed CW. The CW yaw was attributed to either the crown of the roadway and/or an initial CW steering input prior to brake application. The frontal area of the vehicle departed the south roadedge as the vehicle yawed 55 degrees CW. The Monte Carlo subsequently skidded to a stop as it contacted the left rear door area of the stopped Ford Escort. The extremely minor impact sequence produced bumper facia paint transfers to the sheetmetal of the Escort. There was no reportable damage to the front of the Monte Carlo.

The driver of the Ford Escort was a 34 year old female with a height of 170.2 cm (67.0") and weight of 70.3 kgs. (155.0 lbs.) Based on her contact evidence, the driver was probably in a normal driving attitude with the seat track adjusted to a mid track position. She was wearing the automatic, motorized shoulder belt, however, she was not wearing the manual lap belt. Belt usage was determined by air bag transfers on the outside surface of the shoulder belt webbing and several fabric type transfers on the inside surface of the webbing from the driver's blouse. In addition, the stitching at the latchplate area of the shoulder belt was elongated due to driver loading. Rescue personnel cut



the shoulder belt webbing during the extrication of the driver. The lap belt was found retracted into the outboard mounted retractor. There was no evidence of loading on the lap belt webbing or abrasive type loading marks on the plastic extrusion at the left side of the seat adjacent to the lap belt.

The driver responded to the 12 o'clock direction of force impact by moving on a forward trajectory and initially loading the automatic shoulder belt webbing. She subsequently contacted the deployed air bag with her face and upper thoracic areas. There was no contact evidence visible on the face of the air bag. Without use of the manual lap belt, the driver probably submarined the automatic restraint systems and contacted the knee bolster and steering column cover with both knees and lower legs. Large scuffs and a tissue transfer evidence the contact points. The plastic bolster panel was cracked and displaced forward as a result of the knee and leg loading. The driver's left hand contacted the windshield 49.5-56.5 cm (19.5-22.25") left of center adjacent to the left A-pillar. The contact consisted of a large oily smudge with a tissue transfer and was located 22.9-26.0 cm (9.0-10.25") below the windshield header. Blood stains were noted on the deployed air bag, the center console, and on the upper aspect of the right front seat cushion. As a result of the impact force and loading of the automatic restraint systems and interior surfaces, the driver sustained a fracture of C<sub>6</sub>, a right pelvic fracture, a lumbar spine fracture, left patella fracture, fractures of the right radius and ulna, and lacerations of the left anterior shoulder and right knee. She was transported by ambulance to a local hospital where she was admitted for treatment of her injuries.

The passenger of the Ford Escort was a 22 day old infant. Her birth weight was reported at 3.8 kg (8 lb, 5 oz.). The medical examiner reported her length at (24.0") and weight at 5.0 kg (11 lbs.). The infant was placed in a [REDACTED] convertible child restraint that was installed in the vehicle in a rearward facing position. The restraint was manufactured on [REDACTED]-94 and was identified by serial number [REDACTED]. The child restraint was equipped with an [REDACTED] that was in the down and locked position at the time of the crash. In addition, the infant was restrained in the child seat by the integral 3-point harness. The shoulder belts were positioned in the lowest of three adjustment points (slots) that were visible from the back of the restraint. Located at the rear base of the seat was a pivoting leg that provided for recline adjustment of the child restraint. There were two possible adjustment positions for the leg; folded up into the seat, or down and locked which was the position at the time of the crash. Based on the age and the size of the infant, and the configuration of the child restraint with respect to the vehicle's seat cushion, the child restraint was positioned forward on the seat cushion with the adjustment leg positioned over the leading edge of the vehicle's seat cushion. This position provided the infant and the child restraint with the most recline in the rearward facing mode.

The vehicle's manual lap belt was properly positioned through slots in the seat cushion area of the restraint for the rearward facing position. A heavy duty locking clip was affixed to the inboard aspect of the lap belt webbing adjacent to the latchplate, however, the locking clip was not properly utilized in this installation. The motorized shoulder belt system for the right front position was detached from the track buckle and was partially retracted into the center mounted inertia retractor. At the time of vehicle inspection, there was approximately 30-36 cm (12-14") of shoulder belt webbing exposed from the retractor and was lying on the right front seat cushion under the child restraint.



The right front seat track was adjusted to the full rearward position with the seat back adjusted to a near vertical position. The passenger side air bag module cover flap was formed to fit the contour of the upper and mid instrument panel. The single top hinged module cover flap was 32.0 cm (12.6") in width and 15.7 cm (6.2") in height.

The upper portion of the [REDACTED] child restraint was positioned against the horizontal parting seam of the passenger side air bag module cover. The deployment of the passenger side air bag was restricted by the forward placement of the child restraint. The passenger side air bag, when fully extended in its deflated state, was 59.7 cm (23.5 ") in length and was 14.0 cm (5.5") forward of the leading edge of the right front seat back. As the air bag system deployed, the cover flap opened in an upward direction at the designated tear points and contacted the ABS plastic shell of the child restraint. There were vertically orientated abrasive type marks on the face of the flap at the seam. The flap contact and subsequent expansion of the passenger side air bag fractured the plastic frame of the seat at the point where the child restraint rested against the module flap. In addition, the restraint was accelerated rearward into the right front seat back support.

The damage to the child restraint was most visible from the back side of the restraint. Contact damage from the flap and the air bag (transfers) extended 24.8 cm (9.75") across the full width of the shell and 32.40 cm (12.75") vertically. The fracture line of the ABS shell extended 22.9 cm (9.0") across the back of the restraint at the horizontal reinforcement support and 19.3 cm (7.6") laterally across the left side of the shell and 8.6 cm (3.4") laterally on the right side to the pivot point of the shield. The fracture also extended 21.6 cm (8.6") vertically above the horizontal reinforcement to the top of the restraint at the left upper corner when viewed from the rear of the restraint. There was no separation of the ABS shell from the fractures. The padded lining of the seat was torn along the vertical fracture line at the seam.

As a result of contact from the passenger side air bag module cover flap and deploying air bag, the infant sustained multiple circumferential skull fractures involving the left and right parietal bones and the occipital bone with brain matter exuding from the fracture sites, a basilar skull fracture, extensive destruction of the brain with focal areas of hemorrhage and lacerations, subdural hematoma, a contusion of the brain stem, subarachnoid hemorrhage, and subgaleal hemorrhage. These injuries qualify for a crush code (AIS-6) under the guidelines of the Abbreviated Injury Scale, 1990 Revision (AIS 90). In addition, the infant sustained a fracture of the left third rib from loading of the integral belt system or the pivoting shield.

The infant was removed from the Ford Escort by a witness who was traveling behind the Toyota Camry. This witness stated to the investigating police officer that as he approached the vehicle, he observed the child seat in a rearward position on the right front seat cushion. He attempted to release the buckle, however, he had to push the restraint forward to access the buckle release. As he released the buckle assembly, he lifted the shield and reported that the shield separated from the seat. He subsequently removed the infant who remained in a normal position within the child restraint. The infant was immediately transferred to a woman who resided near the crash site. She held the infant and waited for emergency personnel to arrive on-scene. The infant was subsequently transported by helicopter to [REDACTED] Hospital in [REDACTED] PA, where she expired approximately six hours following the crash.



The infant's father stated to the [REDACTED] investigator that he and his wife had view<sup>ed</sup> a video tape at the delivery hospital which advised the parents to place the new born infant in a rearward facing child restraint and place the child in a position next to an adult when transporting the infant in a vehicle. The tape further advised parents to never place an infant in the rear seat alone and unattended. There was no warning in the 1990 production video pertaining to passenger side air bags.

The father further stated that he did not review the vehicle's Owner's Manual or the instructional manual provided with the [REDACTED] child restraint. He did acknowledge reviewing the illustrations of the shipping carton for the child restraint which pertained to the installation of the restraint in the vehicle. The father did have concerns regarding the passenger side air bag, however, he failed to follow the warning that was affixed to the left side of the child restraint. The red warning label advised the following:

**Warning!** When this restraint is used in a rearward facing mode, do not place in the front seat of a vehicle that has a passenger side air bag.



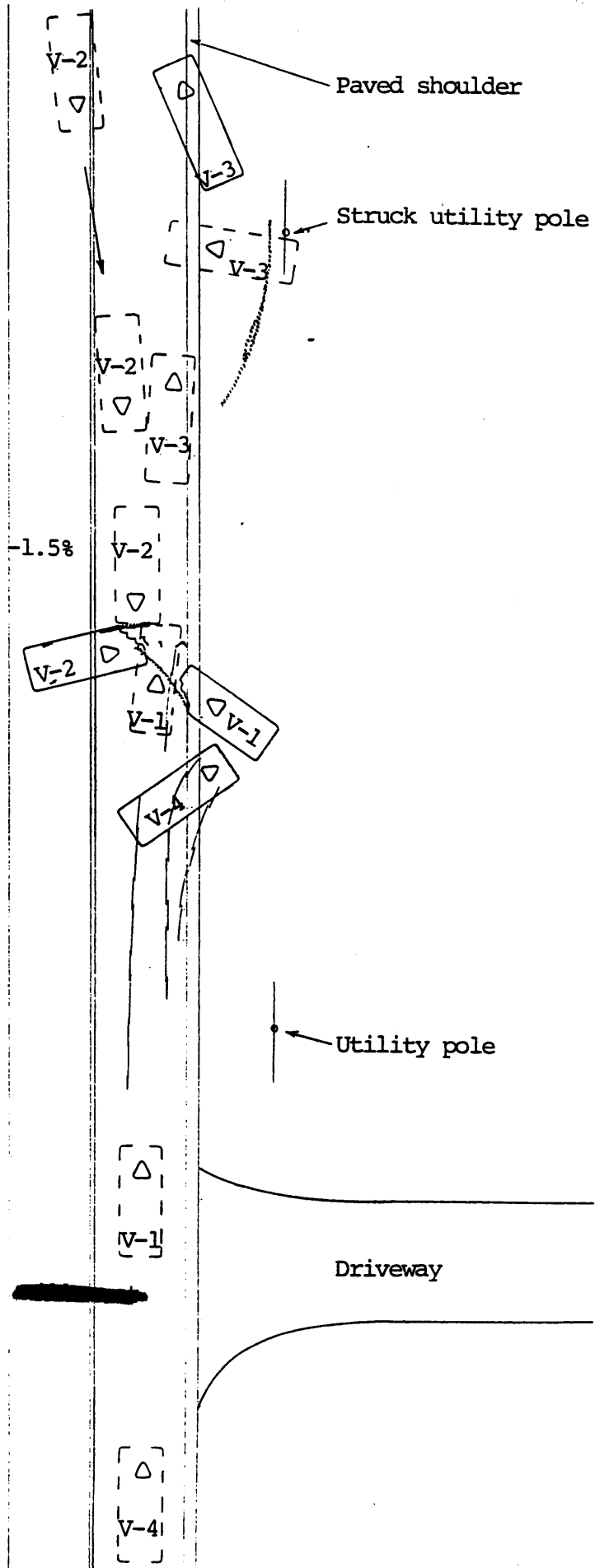
# CRASH SCHEMATIC

CALSPAN CASE NO. 95-16

BEST AVAILABLE

## Vehicles:

- #1 = 1995 Ford Escort LX,  
station wagon
- #2 - 1991 Toyota Camry,  
4-dr. sedan
- #3 - 1987 Buick LeSabre,  
4-dr. sedan
- #4 - 1982 Chevrolet Monte Carlo,  
2-dr. sedan



0' 10' 20'  
Scale 1" = 20'



**CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION**  
**CALSPAN CASE NO. 95-16**  
**VEHICLE: 1995 FORD ESCORT LX, STATION WAGON**  
**LOCATION: [REDACTED] PA**

**CRASH DATA**

Location: County road

City/Township: [REDACTED] PA

Area Type: Rural/Residential

Crash Date/Time: [REDACTED] 1995, daylight hours

Investigation Police Agency: [REDACTED] Police Dept.

Crash Type: Multiple vehicle with off-set, head-on configuration

Air Bag Vehicle  
Occupant Injury Severity: Driver - Moderate (AIS-2)  
Passenger - Fatal (AIS-6)

**AMBIENCE**

Viewing Conditions: Daylight

Weather: Overcast

Precipitation: None

Road Surface: Dry

**HIGHWAY**

Type: Minor arterial

Number of Lanes: 2

Width: 6.9 m (22' 7")

Surface: Asphalt



## **HIGHWAY (CONT'D.)**

Median:	None
Edge:	North edge - grass shoulder South edge - 0.5 m (1' 8") asphalt shoulder
Vertical Alignment:	1.5 percent grade, negative to the east
Horizontal Alignment:	Straight
Estimated Coefficient of Friction:	.70
Traffic Density:	Moderate

## **TRAFFIC CONTROLS**

Signals:	None
Signs:	Posted speed limit signs
Markings:	Yellow full barrier centerlines, solid white edgelines
Speed Limit:	Eastbound - 72 km/h (45 mph) Westbound - 56 km/h (35 mph)

## **VEHICLES**

	<b><u>Air Bag Vehicle</u></b>	<b><u>Vehicle # 2</u></b>
Description:	1995 Ford Escort LX, 4 dr. station wagon	1991 Toyota Camry, 4 dr. sedan
V.I.N.:	1FASP15J7SW	4T1SV21E7MU
Date of Mfg:	95	91
Odometer:	5,169.7 km (3,212.4 miles)	82,984 km (51,565 miles)
Color:	Green	Silver
Engine:	4 cylinder, 1.9 liter	4 cylinder



**VEHICLES (CONT'D.)**

	<b><u>Air Bag Vehicle</u></b>	<b><u>Vehicle #2</u></b>
Transmission:	5-speed manual, floor mounted transmission selector lever	4-speed automatic overdrive, console mounted transmission selector lever
Steering:	Power-assisted rack-and-pinion	Power-assisted rack-and-pinion
Brakes:	Power-assisted front disc, rear drum	Power-assisted disc brakes
Padding:	Upper and mid instrument panel, soft edged steering wheel and air bag module cover flaps, sunvisors, adjustable head restraints, side door panels, door armrests	Upper, mid, and lower instrument panel, soft-edged steering wheel rim and spokes, sunvisors, adjustable head restraints, door panels, door armrests
Automatic Restraints:	2-point motorized shoulder belts in the front seated positions, Supplemental Restraint System (SRS) which consisted of driver and passenger side air bags	2-point motorized shoulder belts in the front outboard seated positions
Manual Restraints:	2-point lap belts in the front seated positions, with inertia activated locking retractors, 3-point lap and shoulder belts in the rear outboard positions, center rear lap belt	2-point lap belts in the front outboard seated positions, 3-point lap and shoulder in the rear outboard positions, center rear lap belt
Tow Status:	Towed due to vehicle damage	Towed due to vehicle damage



## VEHICLES (CONT'D.)

	<u>Vehicle # 3</u>	<u>Vehicle # 4</u>
Description:	1987 Buick LeSabre, 4 dr. sedan	1982 Chevrolet Monte Carlo, 2 dr. sedan
V.I.N.:	1G4HR5438HH	Unknown, not inspected
Odometer:	93,196 km (57,911 miles)	Unknown
TowStatus:	Towed due to vehicle damage	N/A, driven from scene

## VEHICLE DAMAGE

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Exterior:	<p><b>Primary</b> - The 1995 Ford Escort sustained moderately severe frontal damage as a result of its off-set, head-on impact sequence with vehicle #2. Maximum crush was 74.3 cm (29.25") located at the left front bumper corner. Direct contact damage began 19.3 cm (7.6") left of the vehicle's centerline and extended 57.2 cm (22.5") to the left corner of the bumper fascia. The impact deformed the entire frontal structure of the vehicle which resulted in a combined induced and direct contact damage length of 114.3 cm (45.0"). Crush values at bumper level were as follows: <math>C_1 = 74.3</math> cm (29.25"), <math>C_2 = 39.1</math> cm (15.4"), <math>C_3 = 21.6</math> cm (8.5"), <math>C_4 = 11.4</math> cm (4.5"), <math>C_5 = 4.1</math> cm (1.6"), <math>C_6 = 0</math> cm (0.0").</p>	<p>Vehicle #2, the 1991 Toyota Camry was involved in two impact sequences which involved the left frontal area of the vehicle. The Toyota initially impacted the left rear side area of the Buick LeSabre as it encroached into the Buick's lane of travel. Possible white paint transfers from contact with the Buick were noted to the Toyota's bumper fascia, beginning 19.7 cm (7.75") right of the vehicle's centerline and extending 33 cm (13.0") to the left. The remainder of the contact damage between the Toyota and the Buick was masked by damage from the subsequent impact with the Ford Escort. The overlapping impact damage could not be separated, therefore the damage pattern was documented as a single impact.</p>



## **VEHICLE DAMAGE**

### **(CONT'D.)**

#### **Exterior (Cont'd.):**

The damage was concentrated over the left headlamp area and involved compression of the left front structural members. Significant damage occurred to the left tire and wheel assembly which resulted in 34.3 cm (13.5") of rearward displacement of the left front axle position.

Damaged components included the front bumper fascia, bumper reinforcement bar and energy absorbing units, grille, headlamp assemblies, hood, left front fender, and the front structural components. In addition, compression of the frontal structure resulted in induced deformation to the left A-pillar, left sill, roof, windshield, and both left side doors. The left front door was jammed closed by deformation and was subsequently removed from the vehicle by rescue personnel.

**Secondary** - The left side area of the Ford Escort sustained superficial damage as a result on the subsequent impact from the 1982 Chevrolet Monte Carlo (vehicle #4). The damage consisted of paint transfers from the bumper fascia of the Chevrolet on the rub strip of the left doors of the Escort.

The Toyota Camry sustained moderately severe frontal damage with a maximum crush value of 67.8 cm (26.7" ) located at the left front corner of the bumper reinforcement bar. Direct contact damage from its impact sequence with the Ford Escort began 23.5 cm (9.25") right of center and extended 97.2 cm (38.25") to the left bumper corner. The off-set impacts displaced the full width of the frontal plane resulting in a combined induced and direct contact damage length of 115.6 cm (45.5"). The crush profile at bumper level was as follows:  $C_1 = 67.8$  cm (26.7"),  $C_2 = 53.6$  cm (21.1"),  $C_3 = 36.2$  cm (14.25"),  $C_4 = 20.3$  cm (8.0"),  $C_5 = 5.1$  cm (2.0"),  $C_6 = 0$  cm (0").

Damaged components included the front bumper fascia, bumper reinforcement bar, grille, hood, left front fender, left front structural components, and the left front tire and wheel. In addition, induced damage involved the left A-pillar, windshield, left front door, and left lateral displacement of the right front fender and internal structures.



**VEHICLE DAMAGE**  
**(CONT'D.)**

CDC:	Primary - 12-FYEW-3	12-FYEW-3
	Secondary - 09-LPEW-1	(The lateral extent of contact for both impacts were identified, however, the extent of crush for each impact was unknown, therefore the single CDC was assigned to represent the overall damage profile.)
Repair Cost:	Total loss (\$12, 000 est.)	Total loss (\$9, 000 est.)

**Vehicle #3**

**Primary** - The 1987 Buick LeSabre sustained moderate left side damage from its initial impact sequence with the Toyota Camry. Maximum crush was 14.2 cm (5.6") located on the left quarter panel, rearward of the wheel opening. Direct contact damage began on the left rear door, 179.1 cm (70.5") rearward of the left front axle position and extended 182.9 cm (72.0") to the rear bumper corner. The combined induced and direct contact damage was 227.3 cm (89.5") which extended from the B-pillar to the bumper corner. Crush values at bumper level were as follows: C1= 5.1 cm (2.0"), C2= 14.2 cm (5.6"), C3= 13.0 cm (5.1"), C4= 12.1 cm (4.75"), C5= 5.1 cm (2.0"), C6= 0 cm (0.0").

**Vehicle #4**

Vehicle #4, the 1982 Chevrolet Monte Carlo, was not inspected during this on-site investigation. Data obtained through interviews indicated that the Chevrolet sustained extremely minor frontal damage as a result of its impact sequence with the Ford Escort. There was no residual crush reported, however, paint transfers from the left side surface of the Escort were noted to the vehicle's bumper facia.



**VEHICLE DAMAGE**  
**(CONT'D.)**

**Exterior (Cont'd):**

**Vehicle #3**

In addition to sheetmetal engagement, the left front bumper corner area of the Toyota contacted the left rear tire and wheel of the Buick, resulting in 12.7 cm (5.0") of rearward displacement of the left rear axle and counterclockwise rotation of the axle assembly.

**Vehicle #4**

**Secondary** - The initial impact rotated the Buick in a CCW direction as its center of gravity continued in an easterly direction. The right rear side area of the Buick LeSabre subsequently impacted a wooden utility pole that was located 31.8 m (12.5') outboard of the south (right) roadedge. The lateral impact force produced 19.1 cm (7.5") of maximum crush located on the quarter panel, directly forward of the rear bumper.

The direct contact damage began on the quarter panel 61.5 cm (24.2") rearward of the right axle and extended 38.1 cm (15.0") to the bumper corner. The combined induced and direct contact damage length was 142.2 cm (56.0") which began 40.1 cm (15.8") forward of the rear axle at the C-pillar.



**VEHICLE DAMAGE**  
**(CONT'D.)**

	<b><u>Vehicle #3</u></b>	<b><u>Vehicle #4</u></b>
CDC:	Primary - 12-LZEW-2 Secondary - 03-RBEN-3	12-FDEW-1 (est.)
Repair Cost:	Total Loss	\$500.00 (est.)

**Interior (Air Bag Vehicle):**

The interior of the Ford Escort sustained moderate damage as a result of driver contact, exterior deformation, and passenger compartment intrusion. Passenger compartment intrusion was limited to the left front position and involved a maximum rearward (longitudinal) displacement of 21.6 cm (8.5") located at the toe pan. Additional left front intrusions involved rearward displacement of the lower A-pillar 11.4 cm (4.5") and the mid instrument panel 11.4 cm (4.5"). The toe pan and A-pillar deformation resulted in vertical displacement of the floor pan and sill area forward of the B-pillar. The vertical displacement jammed the left front bucket seat track in the adjusted mid track position.

The driver initiated a forward trajectory in response to the frontal impact force and loaded the restraint systems and frontal components. The driver loaded the automatic shoulder belt webbing with sufficient force to stretch and elongate the webbing at the upper stitching in the latchplate area (refer to Photograph No. 36). In addition, driver loading of the belt webbing produced fabric transfers and belt stretching to the inside surface of the webbing, side against driver's torso, 41.9-64.8 cm (16.5-25.5") below the track mounted buckle assembly.

The driver was not wearing the manual lap belt which allowed her pelvic region and lower extremities to move forward and contact the knee bolster and the steering column. Her left knee impacted and scuffed the plastic steering column cover and bolster adjacent to the column, 38.1-48.3 cm (15.0-19.0") left of center and 17.8-33.0 cm (7.0-13.0") below the upper panel. The driver's left knee also scuffed the bolster 53.3-63.5 cm (21.0-25.0") left of center and 25.4-38.1 cm (10.0-15.0") below the upper instrument panel. Her right knee contacted the steering column cover and knee bolster in the area of the ignition switch. A scuff mark and tissue transfer evidenced the contact that was located 24.1-35.6 cm (9.5-14.0") left of center. The knee loading to the plastic bolster panel deformed the bolster forward and cracked the panel at the base of the steering column. The residual displacement of the bolster was approximately 3.8 cm (1.5").

The driver's right hand and/or forearm probably contacted the left side of the rear view mirror which rotated the mirror approximately 80 degrees in a clockwise direction. There was no residual contact evidence or damage to the mirror assembly. Her left hand probably separated from the steering wheel and impacted the windshield 49.5-56.5 cm (19.5-22.25") left of center and 22.9-26.0 cm (9.0-10.25") below the header. A tissue transfer evidenced the contact point (refer to Photograph No. 44).



## **VEHICLE DAMAGE (CONT'D.)**

### **Interior (Cont'd.):**

The driver loaded the deployed air bag and compressed the air bag against the steering assembly. Although no damage or contact evidence occurred to these components, several blood spatters were noted to the driver bag at the 3, 8:30, and 11 o'clock positions.

The right front occupant space did not sustain damage associated with exterior deformation or occupant contact. The passenger side air bag module cover flap opened at the designated tear points and contacted the upper surface of the rear facing child restraint. The contact resulted in vertically orientated abrasions across the leading edge of the cover flap. The abrasions began 7.0 cm (2.75") inboard of the left side of the flap and extended 14.2 cm (5.6") to the right and ranged in height from 0.64 cm (0.25") to a maximum of 2.5 cm (1.0").

The right front seat track was adjusted to the full rearward position with the seat back set to a near vertical position. There was no damage to the track or recline assemblies. The fabric on the forward face of the seat back was compressed and disrupted in a semi-circular pattern at the lower third to mid aspect of the seat back (refer to Photograph Nos. 59 and 60). This occurred as the child restraint was displaced in a rearward direction by air bag deployment which compressed the molded circular base of the restraint into the seat back fabric (Refer to On-Scene Photograph No. 8).

## **AUTOMATIC RESTRAINT SYSTEMS**

The 1995 Ford Escort was equipped with two separate automatic restraint systems. These systems included 2-point motorized shoulder belts in the left front and right front seated positions and a Supplemental Restraint System (SRS) which consisted of driver and passenger side air bags which deployed during the crash. The automatic shoulder belts extended from inertia activated locking retractors that were located at the inboard aspects of the front seat cushions. The latchplates attached to the track mounted buckles which were equipped with an outboard mounted *Emergency Release* mechanism. The automatic shoulder belts were powered along the track mechanism which extended from the upper A-pillar, the roof side rails, and the mid B-pillar. The shoulder belts activated when the adjacent doors were closed and the ignition switch turned to the on-position. Manual lap belts completed the front seat 3-point lap and shoulder belt system.

The driver's side automatic shoulder belt was in use by the driver during the crash. Belt usage was determined by several factors which included loading evidence on the webbing and a full width cut of the webbing by rescue personnel during extrication of the driver. The driver loaded the belt webbing as she initiated a forward trajectory in response to the 12 o'clock impact force. Loading evidence on the webbing consisted of an area of belt stretching and fabric transfers on the inside surface (side against driver) of the belt, located 41.9-64.8 cm (16.5-25.5") below the track mounted buckle assembly. In addition, the upper end of the webbing was elongated at the lower row of stitching below the latchplate (refer to Photograph No. 36), primarily visible on the outboard side of the webbing. Rescue personnel cut the shoulder belt webbing 80.0 cm (31.5") below the buckle assembly in the area of the driver's right hip. The cut was made nearly perpendicular to the webbing and is documented in Photograph Nos. 34, 35, and 36.



## **AUTOMATIC RESTRAINTS (CONT'D.)**

The driver was not wearing the manual lap belt at the time of the crash. This was confirmed by the stowed and retracted position of the belt and the lack of loading evidence of the webbing and hardware components. The lap belt retracted from a single mode inertia activated locking retractor that was located at the base of the B-pillar. A warning label affixed the headliner at the center point of the vehicle between the sunvisors advised the following:

### **WARNING Fasten Lap Belt**

The right front occupant position was equipped with an identical belt system as described above. The motorized shoulder belt was not in use during the crash to restrain the [REDACTED] rear facing child restraint. The belt was disconnected from the track mounted buckle assembly and was found in a partially retracted position at the time of vehicle inspection with the latchplate lying on the seat cushion. There was no loading evidence or damage to the automatic shoulder belt system.

The manual lap belt for the right front position was used to restrain the [REDACTED] child restraint, however, the belt was used improperly in accordance to the vehicle's Owner's Manual. The lap belt was properly routed through the shell of the child restraint as identified by the labeling affixed to the sides of the restraint (refer to Photograph Nos. 77-78) and the instructional manual. The vehicle was equipped with inertia activated lap belts as identified in the Owner's Manual on page 51. (Specific pages of the Owner's Manual that relate to restraint usage are included as Attachment G of this report.) The manual requires the use of a locking clip to properly restrain a child restraint in a vehicle equipped with inertia activated lap belts. A locking clip was provided with the child restraint and was improperly installed by the infant's father. He related to the NTSB investigator that he reviewed the illustrations on the outside of the carton in which the restraint was packaged, however, he did not review the instruction booklet (included as Attachment H) or the Owner's Manual for the Ford Escort.

The infant's father installed the locking clip at the latchplate end of the belt webbing as documented in Photograph Nos. 79-80. The belt was not fully extended from the inertia retractor and looped through the locking clip as illustrated in Pages 112-114 of the Owner's Manual, therefore the clip provided no benefit toward restraining the child restraint. In this position, the lap belt could be extended from the retractor during normal driving activities which would allow the child restraint to tip or rotate.

There was no loading evidence on the right front lap belt or system hardware. Emergency personnel cut the lap belt webbing at the outboard aspect of the child restraint to remove the restraint from the vehicle.

The Supplemental Restraint System consisted of two front mounted crash sensors, a passenger compartment mounted safing sensor and diagnostic module, a steering wheel clockspring switch, an instrument panel mounted air bag indicator lamp, and the driver and passenger air bag modules. The crash sensors were mounted to the leading edge of the upper radiator support



## AUTOMATIC RESTRAINT SYSTEMS (CONT'D.)

panel and were located directly rearward of the grille. The left crash sensor sustained minor damage to the external housing and was rotated due to frontal deformation. The left crash sensor was identified by Ford Part No. [REDACTED] with a bar coded number of [REDACTED]. There was no damage or displacement of the right crash sensor. It was identified by Ford Part No. F5CB [REDACTED] and bar coded number [REDACTED]. (The crash sensors are documented in Photograph Nos. 30-32.)

The SRS deployed as a result of the off-set, head-on impact sequence with the Toyota Camry. Deployment involved the inflation of the driver and passenger side air bags. The driver side air bag module was mounted in a typical configuration within the four spoke steering wheel. The module opened in an H-configuration at the designated tear points with asymmetrical cover flaps. The upper module cover flap measured 22.5 cm (8.875") at the horizontal tear line and flared outward at 4.8 cm (1.9") above the tear line. The height of the upper cover flap was 9.5 cm (3.75"). The lower module cover flap was 17.5 cm (6.875") in width at the tear point and 18.4 cm (7.25") in width at the lower hinge point with a height of 5.1 cm (2.0"). There was no damage or contact evidence to the cover flaps.

The driver's side air bag was approximately 62.2 cm (24.5") in diameter and was constructed of two separate fabrics. A typical woven fabric was specified by the manufacturer on the driver side of the bag, aft of the peripheral seam. A close-weave type fabric, similar to a canvas-like material, formed the forward aspect of the air bag, forward of the internal peripheral seam. The bag was vented by two 3.8 cm (1.5") diameter vent ports located within the 12 o'clock sector of the bag, centered 7.0 cm (2.75") forward of the peripheral seam. The driver's side air bag was tethered by four internal tether straps which extended from a 17.1 cm (6.75") diameter reinforcement that was sewn to the center of the bag with two rows of red stitching (refer to Photograph No. 45).

The driver loaded the deployed air bag during the crash as she responded to the 12 o'clock impact force. There was no direct evidence of driver contact with the air bag (i.e., tissue and/ or makeup transfers), however, several blood spatters were noted to the 3, 8, and 11 o'clock positions.

The passenger side air bag module was contained in the right mid and upper instrument panel and deployed from a single cover flap that was hinged at the top. The face of the passenger side module cover flap was contoured to the form of the instrument panel. The rectangular flap was 15.7 cm (6.2") in height and 32.0 cm (12.6") in width. The SRS acronym was molded into the lower left corner of the flap. During deployment, the cover flap opened at the designated tear points as the leading edge of the flap impacted the [REDACTED] child restraint. Vertically orientated abrasions extended 7.0-21.3 cm (2.75-8.375") right of the inboard side of the cover flap and up to 2.5 cm (1.0") onto the face of the flap from the lower (leading) edge.

The passenger side air bag was constructed of a woven nylon fabric which measured 33.0 cm (13.0") in width at a horizontal seam that was located 7.0 cm (2.75") rearward of the instrument panel. The rearward end of the passenger side air bag was 35.9 cm (14.125") in width between the red stitching lines which separate the face and top panels from the side panels. All measurements were obtained



## **AUTOMATIC RESTRAINTS (CONT'D.)**

with the bag in its deflated state and extended outward as documented in Photograph No. 58. In this state, the bag extended 59.7 cm (23.5") rearward, toward the seat back. The right front seat back was positioned in a near vertical position with the seat track adjusted to the full rearward position resulting in a horizontal distance of 73.7 cm (29.0") between the base of the passenger side air bag module and the seat back. The bag was vented by two 6.4 cm (2.5") diameter ports that were located on the side surfaces of the air bag, centered 16.5 cm (6.5") rearward of the instrument panel mounted module.

The deploying passenger side air bag expanded against the back of the rearward facing child restraint and displaced the restraint rearward into the vehicle's seat back. There was no evidence of contact or damage to the air bag.

The exposed side of the sunvisors (down side when visor is stowed against header) contained a warning label located at the mid leading edge of the visor which advised the following:

### **AIR BAG**

See Other Side

The warning label on the "other side" of the visor was centered and measured 15.9 x 5.7 cm (6.25 x 2.25"). The yellow and white colored label advised the following:

### **CAUTION**

#### **TO AVOID SERIOUS INJURY:**

For maximum safety protection in all types of crashes, you must always wear your safety belt.

Do not install rearward-facing child seats in any front passenger seat position.

Do not sit or lean unnecessarily close to the air bag.

Do not place any objects over the air bag or between the air bag and yourself.

See the Owner Manual for further information and explanations.

## **CHILD RESTRAINT**

The 22 day old infant right front occupant of the Ford Escort was positioned and restrained in a [REDACTED] convertible-type child restraint. The convertible-type restraint was designed to be used in both the rearward facing and forward facing modes. In the rearward facing mode, the manufacturer identified a maximum infant weight of under 9.0 kg (20.0 lbs.). The restraint was recommended to be used in the forward facing mode for all toddlers within the weight bracket of 9.0-19.5 kg (20-43 lbs.). The restraint was manufactured on [REDACTED]-94 and was identified by production number [REDACTED]. These identifiers were printed on a label that was affixed to the left side of the shell of the child restraint (Photograph Nos. 69-70). In addition to the date stamp, a molded calendar dial was located at the upper back area of the restraint which identified the mold date as [REDACTED] 94. The red aspect of the left side identification label contained the following warning:



## **CHILD RESTRAINT (CONT'D.)**

**Warning!** When this restraint is used in the rear-facing mode, do not place in the front seat of a vehicle that has a passenger side air bag.

The child restraint was constructed of a single mold ABS-type plastic shell with separate routing paths for the vehicle's seat belt attachment when used in the forward and rearward facing modes. These slots were identified by labels affixed to both sides of the restraint with arrows directing the user to the appropriate slots for the directional facing modes. The labels were printed in both English and Spanish and are documented in Photograph Nos. 68 and 76-78. This data was also included in the Instructional Manual which is provided as Attachment H of this report. The restraint was equipped with a front mounted shield that locked in place with the restraint's integral 3-point harness system. The padded face of the shield pivoted to automatically adjust to the size of the child and was identified as an [REDACTED] Shield (refer to Photograph Nos. 63-64). A padded liner-type cushion covered the anterior aspect of the child restraint. In addition to the cushion, a head support pad was placed around the infant's head to provide lateral support.

The restraint was equipped with an integral 3-point belt system. The shoulder belts attached to a metal clip located at the base and extended up the back of the restraint through the lower set of three slots which were designed to adjust the belt fit to the size of the child. The end of the belts were looped through the latchplate and sewn to a tether strap which was attached to the shield. As the belts were buckled into place, the tether positioned the shield in front of the child. The buckle assembly was attached to the base of the restraint in the forward third of the seat area. The release lever was positioned on the frontal aspect of the restraint (Photograph No. 75). A plastic harness retainer clip was (Photograph No. 72) attached to the mid aspect of the shoulder belts and was designed to fasten the shoulder belts together to ensure a proper fit for the child.

The base of the child restraint was equipped with an adjustable leg (recline stand) which provided the user with two vertical positions for the restraint. With the leg folded into the base of the unit, and the restraint placed on a flat surface, the child restraint had a recline angle of 35 degrees. Extending the leg to the down and locked position reduced the recline angle to 14 degrees. A red locking button was located on the left side of the restraint.

The [REDACTED] was installed in the rearward facing mode in the Ford Escort and was presumably resting against the leading edge of the passenger side air bag module cover as the supplemental driver and passenger side air bag deployed. The leading edge of the top mount passenger side module cover contacted the upper aspect of the shell of the rear facing child restraint. Abrasive type marks extended 24.8 cm (9.75") across the back of the plastic shell at the horizontal reinforcement which extended between the vertical ladder type reinforcements. Similar abrasions extended on the vertical ribs of the reinforcements, beginning at a point that was 12.1 cm (4.75") below the horizontal bar and extending 32.40 cm (12.75") to the upper surface of the restraint. Patterned air bag fabric transfers were noted to the upper surface of the restraint which measured 12.7 cm (5.0") in height and 15.2 cm (6.0") in width.



## **CHILD RESTRAINT (CONT'D.)**

The loading of the ABS-type shell by the cover flap and subsequent expansion of the air bag fractured the child restraint at multiple points. A 22.9 cm (9.0") horizontal fracture (Photograph No. 84) line extended across the top of the ladder-type reinforcements and continued into the side shields of the restraint. The left side fracture line (Photograph No. 87) extended 19.3 cm (7.6") through the ladder-type reinforcement to the front radius of the restraint, below the pivoting shield attachment point. The right side fracture line (Photograph No. 91) extended 8.6 cm (3.4") to the right pivot point of the shield. As a result of the fractures, the pivoting shield disengaged from the pivot points, however, it remained attached to the restraint by the latchplate tether. A vertical fracture line extended 21.6 cm (8.6") above horizontal reinforcement to the top of the shell. There were no separated fragments of the shell. The left upper quadrant of the padded cushion was torn in both the horizontal and vertical directions at the seams as a result of the fractures to the shell. The seam separation was 35.6 cm (14.0") in length.

An abrasive type transfer was noted to the right side of the pivoting shield at the apex of the front and side surfaces. It was unknown if this abrasion was crash related or resulted from the post-crash handling of the restraint. The right side base of the restraint was abraded (Photograph No. 93) from probable contact with the inboard mounted lap belt buckle assembly. There was no matching abrasion to the vinyl extrusion surrounding the buckle assembly.

## **VEHICLE VELOCITY ESTIMATES**

	<b>Air Bag Vehicle</b>	<b>Vehicle #2</b>
Travel Speed:	48 km/h (30 mph)	48 km/h (30 mph)
Impact Speed:	26 km/h (16 mph)	48 km/h (30 mph)
Total Delta V:	33 km/h (21 mph)	31 km/h (19 mph)
Longitudinal Delta V:	-33 km/h (-21 mph)	-31 km/h (-19 mph)
Lateral Delta V:	0 km/h (0 mph)	-2 km/h (-2 mph)
Energy Absorption:	48,972 joules (36,115 ft-lb)	75,082 joules (52,052 ft-lb)

The above velocity changes were computed by the damage and trajectory algorithm of the CRASHPC Program. The output is included as Attachment D of this report.

## **COLLISION SEQUENCE**

**Pre-Crash:** The driver of the 1991 Toyota Camry (vehicle #2) had departed her work place. A witness reported to the investigating police officer that he was traveling approximately three car lengths behind the Toyota Camry when he observed the Toyota drift across the centerline of the roadway and enter the eastbound travel lane. He stated that several eastbound motorists sounded their horns which drew



## **COLLISION SEQUENCE (CONT'D.)**

### **Pre-Crash**

**(Cont'd.)** the attention of the driver of the Toyota. She redirected the vehicle back into the westbound travel lane and proceeded in a westerly direction. Another witness (witness #2), who was traveling in an easterly direction, noted the Toyota drift across the centerline into the eastbound lane. This witness steered his vehicle onto the south (right) shoulder to avoid contact with the encroaching Toyota. As witness #2 stopped his vehicle on the south shoulder of the roadway, he reported that he heard two loud impacts.

The 1987 Buick LeSabre (vehicle #3) was traveling in an easterly direction behind witness #2 at a driver estimated speed of 56 km/h (35 mph). The Ford Escort (air bag vehicle) was also proceeding eastbound, traveling behind vehicle #3 at a police reported speed of 48 km/h (30 mph). A fourth vehicle, the 1982 Chevrolet Monte Carlo was traveling behind the Ford Escort at a similar speed of 48 km/h (30 mph). A shallow hillcrest was located approximately 24.4 m (80.0') west of the impending crash site on the straight segment of roadway. At this point, the posted speed limit increased to 72 km/h (45 mph) for eastbound traffic flow and decreased to the 56 km/h (35 mph) limit for westbound traffic.

As the driver of the Buick LeSabre crested the positive grade, he observed the westbound Toyota Camry drift across the centerline into the eastbound travel lane. The driver of the Buick applied a clockwise steering input in an attempt to avoid the Toyota. At this point, the Ford Escort was traveling on the positive grade, therefore the driver was unaware of the events ahead. The driver of the Chevrolet Monte Carlo had traversed the intersection located 84 m (275') west of the [REDACTED] and was approximately 61 m (200') behind the Ford Escort.

**Crash:** The left frontal area of the Toyota Camry initially impacted the left rear door and quarter panel area of the Buick LeSabre in a sideswipe-type configuration in the eastbound travel lane. Resultant directions of force were within the 12 o'clock sector for both vehicle's. The impact, which occurred rearward of the Buick's center of gravity (CG), snagged the rear bumper of the LeSabre and rotated the vehicle in a CCW direction as its CG continued in a easterly direction. The Buick yawed in a CCW direction as it departed the south roadedge and traversed the grassy area adjacent to the road. The rear tires of the Buick LeSabre gouged the grassy surface as the vehicle yawed 90 degrees CCW and traveled approximately 6.7 m (22.0') as the right quarter panel area of the Buick subsequently impacted a wooden utility pole that was located 3.8 m (12'6") outboard of the south roadedge. The 3 o'clock direction of force impact crushed the quarter panel to a maximum depth of 19.1 m (7.5") and redirected the vehicle in a clockwise (CW) direction. The Buick separated from the pole and traveled in an easterly direction before coming to rest approximately 4.9 m (16.0') east of the struck pole, straddling the east shoulder.



## COLLISION SEQUENCE (CONT'D.)

### **Crash**

**(Cont'd.):** As the driver of the Ford Escort crested the hill, she detected the encroachment of the Toyota Camry into her lane and the impact sequence with the Buick. She steered in a CW direction and braked with sufficient force to lock the right front wheel of her vehicle as it skidded 3.9 m (13.0') in a tracking orientation in an attempt to avoid the impending crash. The driver of the Buick stated that as his vehicle came to rest, he realized that the Toyota Camry had struck another vehicle. The initial impact with the Buick LeSabre redirected the Toyota Camry in a CW direction, however, it continued to travel in a westerly direction in the eastbound travel lane. Based on physical evidence at the crash scene, the Toyota had traveled approximately 7.6 m (25.0') following its impact with the Buick and struck the Ford Escort in an off-set head-on configuration.

The left front of the Toyota Camry impacted the left frontal area of the Ford Escort in the center of the eastbound travel lane. Impact speeds were computed by the damage and trajectory mode of the CRASHPC program at 26 km/h (16 mph) for the Ford Escort and 48 km/h (30 mph) for the Toyota Camry. Resultant directions of force were within the 12 o'clock sector for both vehicles with computed velocity changes of 33 km/h (21 mph) for the Escort and 31 km/h (19 mph) for the Camry. The impact induced deceleration (longitudinal component of -31 km/h) exceeded the deployment threshold of the Ford Escort, therefore the driver and passenger side air bags deployed. As the vehicles crushed to maximum engagement, the Ford Escort was displaced rearward and rotated 62 degrees in a CCW direction, before coming to rest off-road 3.0 m (10.0') southwest of the point of impact. The Toyota Camry rotated 103 degrees in a CCW direction as its CG continued westbound, coming to rest nearly perpendicular to the travel lanes and straddling the centerlines of the roadway.

Vehicle #4, the 1982 Chevrolet Monte Carlo crested the hill as the Ford Escort and Toyota Camry had separated and initiated their respective post-crash Trajectories. The driver of the Monte Carlo applied a rapid CW steering input and a braking force that was sufficient to lock the wheels of the vehicle. As a result of the avoidance actions and the crown of the roadway, the vehicle initiated a locked four wheel skid pattern with a CW yaw. The Monte Carlo skidded a distance of 11.4 m (37'3") and yawed 55 degrees CW with the front of the vehicle traveling off the right roadedge. As the Monte Carlo came to rest in its yawed attitude, the left front bumper area of the vehicle contacted the right rear door area of the Ford Escort as it came to rest off-road. The minor impact sequence produced paint transfers to both vehicle's with no displacement from their final rest positions.



## **COLLISION SEQUENCE (CONT'D.)**

### **Post-Crash:**

#### **Final Rest -**

The Buick LeSabre came to rest down stream (east) of the multi-vehicle crash site. At rest, the Buick was straddling the south edgeline, facing in an easterly direction, approximately 20 degrees CCW of its original trajectory. The Buick's final rest position was approximately 10.7 m (35.0') east of the impact location with the Toyota and 4.3 m (14.0') east of the struck pole. The Toyota Camry came to rest nearly perpendicular to the travel lanes, 4.0 m (13.0') northwest of its impact location with the Ford Escort, facing in a southerly direction. The vehicle's post-impact trajectory and final rest positions were determined from physical evidence at the crash scene.

The Ford Escort came to rest off-road with its frontal area straddling the south edgeline. The vehicle had rotated 62 degrees CCW from its at-impact position and was facing in a northeasterly direction. The Chevrolet Monte Carlo came to a controlled stop with its CG resting on the south edgeline of the roadway and its frontal area against the left side of the Escort. At rest, the Monte Carlo was facing in a southeasterly direction and had yawed approximately 55 degrees CW.

#### **Driver/Occupant Activities -**

The driver of the Ford Escort sustained incapacitating injuries and remained in the vehicle following the crash. She was treated by rescue personnel in the vehicle and removed on a backboard. The infant right front occupant of the Ford Escort was removed from the vehicle by a passing motorist who stopped to render aid at the scene. This person stated that as he approached the vehicle, he noted the child restraint was in a normal attitude within the vehicle and that the child remained restrained within the [REDACTED] child Restraint. He unbuckled the integral harness and unfastened the plastic clip on the shoulder belts and removed the infant from the seat. He immediately handed the infant to a woman at the scene and advised her to sit in his vehicle near the crash scene.

The driver of the Toyota Camry sustained moderate severity injuries and was treated in the vehicle prior to removal by rescue personnel. The driver's of the Buick LeSabre and Chevrolet Monte Carlo were not injured and exited their vehicles unassisted.

#### **Rescue/Emergency Personnel Activities -**

Local police received notification of the crash and responded to the scene. Several units arrived on-scene within five minutes of the crash. The officers initiated traffic control procedures and the investigation of the crash. A local volunteer fire department responded to the crash site to provide emergency treatment and



## **COLLISION SEQUENCE (CONT'D.)**

### **Post Crash (Cont'd.):**

#### **Rescue/Emergency Personnel Activities (Cont'd.) -**

transport to the injured driver's. The firemen used hydraulic equipment to open and remove to the left front door of the Ford Escort. The driver's were transported by ambulance to local hospitals for treatment of their injuries. The infant occupant of the Ford Escort was transported from the scene by helicopter and flown to a [REDACTED] Hospital in [REDACTED] PA where she expired during evening hours.

#### **Scene Clearance -**

The Ford Escort and Toyota Camry sustained moderately severe frontal damage and were towed from the crash scene. The Buick LeSabre sustained moderate disabling damage to both rear side areas which required towing. The Chevrolet Monte Carlo sustained minor crash related damage and was towed at the request of the investigating officer.

## **HUMAN FACTORS/OCCUPANT DATA**

### **Air Bag Vehicle**

Driver:	34 year old female
Height:	170.2 cm (67.0")
Weight:	70.3 kg (155.0 lbs.)
Manual Restraint Usage:	None, lap belt was available
Usage Source:	Vehicle inspection, driver interview
Automatic Restraint	
Usage:	Motorized, 2-point shoulder belt, driver's side air bag
Usage Source:	Vehicle inspection
Eyewear:	Unknown
Vehicle Familiarity:	3 months
Route Familiarity:	Unknown
Mode of Transport	
From Scene:	Ambulance
Type of Medical Treatment:	Admitted to an area hospital for treatment of her injuries



## **DRIVER INJURIES**

<b>INJURY</b>	<b>INJURY SEVERITY (OIC/AIS)</b>	<b>INJURY MECHANISM</b>
Fracture of C <sub>6</sub>	Moderate (650216.26)	Unknown
Lumbar spine fracture	Moderate (650616.28)	Unknown
Right pelvic fracture	Moderate (852600.21)	Induced fracture from right knee loading into knee bolster (probable)
Fracture of the left patella	Moderate (852400.22)	Intruding knee bolster
Fractured right ulna	Moderate (753200.21)	Deploying air bag and/or module cover flaps (probable)
Fractured right radius	Moderate (752800.21)	Deploying air bag and/or module cover flap (probable)
Lacerated right knee	Minor (890600.11)	Intruding knee bolster
Lacerated anterior left shoulder	Minor (790600.12)	Motorized shoulder belt webbing

## **DRIVER KINEMATICS**

The driver of the 1994 Ford Escort was in a normal, upright posture at impact as evidenced by her trajectory and contact points with interior components. The driver's seat was probably adjusted to a mid track position (jammed) with the seat back in a slightly reclined position. She was restrained by the 2-point automatic shoulder belt system, however, she was not wearing the manual lap belt. Automatic belt usage was derived from loading evidence on the belt webbing, a cut of the webbing during extrication by rescue personnel, and from injury incurred by belt loading. The lap belt was found post-crash fully retracted into the outboard inertia activated retractor at the base of the driver's seat. Additional restraint was provided by deployment of the driver's side air bag Supplemental Restraint System.

Immediately prior to impact with the Toyota Camry, the driver of the Ford Escort initiated avoidance action by applying a clockwise steering input and braking with sufficient force to lock the front tires of the vehicle. Her hands were placed at an unknown clock position on the steering wheel. At impact, the SRS deployed as the driver initiated a forward trajectory in response to the 12 o'clock impact force. Although unconfirmed by contact evidence, the driver's side air bag module cover flaps and/or the expanding air bag probably contacted the anterior aspect of the driver's right forearm which resulted in fractures of the right radius and ulna. As a result, the driver probably lost her grip of the steering wheel as her right hand flailed upward and to the right, contacting the left side of the windshield mounted rear view mirror. The suspected contact rotated the mirror approximately 80



## **DRIVER KINEMATICS (CONT'D.)**

degrees on a counterclockwise direction. There was no damage or contact evidence to the mirror and no documented injury to the driver's hand. Her left hand subsequently separated from the steering wheel and impacted the windshield adjacent to the left A-pillar. The laminated windshield was cracked by exterior deformation prior to the left hand contact. Tissue transfers were embedded into the glazing cracks 49.5-57.2 cm (19.5-22.5") left of the vehicle's centerline and 22.9-26.0 cm (9.0-10.25") below the windshield header. No injury to the left hand was reported.

The lack of lap belt usage, in combination with intrusion of the left instrument panel, allowed the driver's knees to impact the knee bolster and the steering column cover. Her left knee initially contacted the left side of the steering column cover and knee bolster 38.1-48.3 cm (15.0-19.0") left of center and 17.8-33.0 cm (7.0-13.0") below the upper panel left of center. The contact scuffed the plastic components and deformed the bolster to a depth of 3.8 cm (1.5") at the mid point of the steering column. As a result of the knee contact, the driver sustained a fractured left patella. An additional left knee scuff was noted to the bolster 53.3-63.5 cm (21.0-25.0") left of center and 25.4-38.1 cm (10.0-15.0") below the top surface of the instrument panel. The driver's right knee scuffed the knee bolster and the steering column cover left of center. The right knee contacted the right aspect of the knee bolster, steering column cover, and the ignition switch. Tissue transfers and scuff marks evidenced the right knee contact which resulted in a laceration over the knee area. The energy transmitted through the femur from the knee loading resulted in an induced fracture of the driver's right pelvis.

The driver's torso loaded the automatic shoulder belt webbing as she responded to the 12 o'clock impact force. Belt loading was evident by the elongation of the stitching at the upper end of the webbing, 7.4 cm (2.9") below the motorized buckle assembly [Refer to Photograph No. 36]. In addition to the stitching elongation, the driver side of the webbing was gouged with fabric transfers (16.5-25.5") below the detachable buckle assembly. The driver loading of the shoulder belt webbing resulted in a laceration of the anterior left shoulder. She subsequently loaded the deployed air bag with her torso and facial areas. The combination of belt and air bag loading provided the driver with a sufficient ride-down which prevented her from potential thoracic and/or abdominal injuries. There was no evidence of driver contact on the deployed air bag (i.e., makeup transfers), however, several small blood spatters were noted to the bag at the 3, 11, and 8:30 o'clock positions.

The driver sustained a fracture of C<sub>6</sub> and a lumbar spine fracture. The fractures were not further specified, therefore these injury mechanisms were unknown. The injuries possibly resulted from extension or flexion during the driver's forward trajectory and subsequent restraint usage, or possibly from rebound contact into the seat back and head restraint/B-pillar. There was no contact evidence to support the rebound trajectory of the driver.



## **PASSENGER DATA**

Right Front Passenger: 22 day old female  
Length: 60.1 cm (24.0")  
Weight: 5.0 kg (11 lbs.)  
Manual Restraint Usage: Restrained in a rearward facing [REDACTED] convertible child restraint placed in the right front position of the Ford Escort. The [REDACTED] child seat was restrained by the vehicle's lap belt.

Automatic Restraint Usage: The supplemental passenger side air bag deployed into the rearward facing child restraint.

Removal From Vehicle: Removed from child restraint and vehicle by a passer-by

Medical Treatment: Administered emergency treatment at the scene by paramedics prior to helicopter transport to a [REDACTED] Hospital in [REDACTED] PA.  
Initial Glasgow Coma Score: 3

Medical Outcome: The infant expired on the day of the crash at 2025 hours

## **PASSENGER INJURIES**

<b>Injury</b>	<b>Injury Severity (OIC/AIS)</b>	<b>Injury Mechanism</b>
Contusion of the brain stem	Critical (140204.58)	Passenger side air bag module cover flap/deploying air bag/child restraint
Massive subdural hematoma	Critical (140446.56)	Passenger side air bag module cover flap/deploying air bag/child restraint
Circumfrential skull fractures involving the right parietal bone, left parietal bone, and occipital bone with brain matter exuding from fracture sites	Severe (150406.41) (150406.42) (150406.46)	Passenger side air bag module cover flap/deploying air bag/child restraint
Extensive destruction of the brain with focal areas of hemorrhage and lacerations	Severe (140688.49)	Passenger side air bag module cover flap/deploying air bag/child restraint
Basilar skull fracture	Serious (150200.38)	Passenger side air bag module cover flap/deploying air bag/child restraint



<b><u>PASSENGER INJURIES (CONT'D.)</u></b>		
Generalized subarachnoid hemorrhage	Serious (140684.39)	Passenger side air bag module cover flap/deploying air bag/child restraint
Generalized swelling of the head with circumfrential subgaleal hemorrhages	Minor (190402.10)	Passenger side air bag module cover flap/deploying air bag/child restraint
Left rib fracture	Minor (450212.12)	Integral shoulder belt system of the Cosco child restraint and/or the integral shield
The combined head injuries qualify for a crush code as per AIS-90 coding conventions	Maximum (113000.60)	Passenger side air bag module cover flap/deploying air bag/child restraint

#### **PASSENGER (INFANT) POSITION/KINEMATICS**

The right front passenger of the 1995 Ford Escort was a 22 day old female infant. She was positioned in a rearward facing [REDACTED] convertible type child restraint. The child restraint was secured to the vehicle by the inertia activate lap belt and was subsequently contacted by the passenger side air bag module cover flap and the deploying air bag. Air bag contact fractured the ABS-type plastic shell of the child restraint which resulted in multiple closed head injuries to the infant. She expired approximately six hours following the crash.

Following the birth of the infant, her parents viewed a video tape at the delivery hospital which pertained to vehicle safety for ~~and~~ infants. The video was produced in 1990 and advised parents to place the infant in a rear facing child restraint and position the restraint next to an adult for supervision while traveling in the vehicle. The video tape further advised parents to never place an infant in the rear seat area alone and unattended. A key issue that was not addressed in the video was passenger side air bags. The parents, however, were given an informational package at the hospital which contained data advising against the placement of a rearward facing child restraint in the front seat of a vehicle equipped with a passenger side air bag.

The father of the infant stated to the [REDACTED] investigator that he and his wife had failed to read the Owner's Manual that was provided with the Ford Escort or the instructional booklet that was included within the shipping carton of the [REDACTED] child restraint. The father did acknowledge that he reviewed the illustrations on the outside of the carton which pertained to the installation of the restraint in a vehicle. The father had concerns regarding the placement of the infant in the right front position of the vehicle, behind the passenger side air bag. He was aware of the warning labels on the child restraint and the vehicle. however, as new parents, they followed the advise of the hospital.



## **PASSENGER (INFANT) POSITION/KINEMATICS**

The father stated that he placed the child restraint in the right front position of the vehicle several days prior to the crash and had modified the placement of the child restraint over his concerns for the passenger side air bag. He stated to the [REDACTED] investigator that he had laid the child restraint on its back on the vehicle's seat cushion in the rearward facing position with the recline adjustment leg folded up into the base of the restraint. He had rolled a large bath-type towel and placed the towel roll under the base of the restraint at the junction of the vehicle seat cushion and seat back. (The towel was visible in Photograph No. 8 of the on-scene photographs of this report.) He placed the locking clip that was supplied with the [REDACTED] at the latchplate end of the manual lap belt webbing and properly routed the belt through the appropriate slots in the base of the child restraint, and buckled the belt to the inboard mounted hardware. In this position, the base of the [REDACTED] child restraint was in a vertical position against the seat back of the right front seat. In the event of a crash, the infant's father thought the air bag would deploy over the top of the child restraint and would not interfere with the restraint.

This position was reenacted using an exemplar child restraint and an exemplar Ford Escort. The contour of the vehicle's seat cushion and the contour of the child restraint allowed for a poor fit between the two components. The seat was unstable in both the longitudinal and lateral directions. The inertia activated lap belt, as used by the father, did not cinch the restraint firmly into the vehicle's seat cushion, therefore the child restraint was unstable in this position.

The child restraint was equipped with an adjustable recline leg that was affixed to the rearward aspect of the restraint base. The leg had two adjustment positions; folded up into the seat base, or extended down in the locked position (refer to Photographs 49-52). The adjustment leg provided approximately 20 degrees of recline to the child restraint when the leg was folded up into the base. Although the infant's father stated that he had installed the child restraint in the vehicle with the adjustment leg folded up into the base of the restraint, photographs of the child restraint in the Ford Escort at the scene of the crash clearly show the leg in the down (extended) and locked position.

The child restraint was removed from the vehicle at the scene of the crash. With conflicting data regarding the pre-crash position of the child restraint, several key factors were observed during the inspection of the Ford Escort and the [REDACTED] child restraint which contributed to the reconstruction of the position of the restraint at the time of the crash. These factors included the vertically orientated abrasions on the leading edge of the air bag module cover flap and the abrasions and fracture points to the back side of the shell of the [REDACTED] child restraint.

The child was probably properly restrained by the integral 3-point harness with the shoulder belt positioning clip in place. The shoulder belts were positioned at the lowest set of adjustment slots in the back of the child restraint (refer to Photograph No. 83). The [REDACTED] was in the down position in front of the infant. The shield was attached to a tether strap that was sewn to the shoulder belts of the child restraint at the base mounted latchplate. This configuration allowed for the shield to be in the down and locked position at all times. An additional padded head positioning cushion was placed within the child restraint to minimize the head movement of the infant (refer to Photograph Nos. 71 and 73). This cushion was not designed to offer increased head protection in the event of a crash.



## **PASSENGER (INFANT) POSITION/KINEMATICS**

Based on the available evidence and parent statements, the child restraint was fastened to the right front seat position with the vehicle's lap belt. The lap belt was properly routed through the slots in the base of the child restraint (refer to Photograph No. 64) as advised in the [REDACTED] Instructional Manual and on the labels affixed to both sides of the restraint. The locking clip that was provided with the child restraint was affixed to the belt webbing adjacent to the latchplate, however, the lap belt webbing was not looped through the locking clip as illustrated in pages 114-120 of the vehicle's Owner's Manual which is included as Attachment G of this report. The vehicle's seat track was adjusted to the full rearward position with the seat back in a near vertical position.

Contact damage to the back of the child restraint and vertically orientated abrasive type marks on the passenger side air bag module cover flap indicated that the child restraint was resting against, or within a close proximity to the air bag module at deployment of the SRS. By placing the child restraint in the vehicle on the right front seat cushion, four possible scenarios were identified with respect to placement of the child restraint at the time of the crash. The possible scenarios are as follows:

The first scenario as illustrated in Photograph No. 50, placed the child restraint fully onto the vehicle's seat cushion with the adjustment leg in the down and locked position as found by police at the crash scene and documented in On-Scene Photograph No. 8. This position placed the child restraint in a vertical orientation with a measured recline angle of -1 degree (1 degree rearward of vertical). This position would have placed the infant in an upright attitude within the child restraint, therefore the infant would have slumped forward toward the integral shield and vehicle's seat back.

A second possible position of the child restraint, the adjustable leg was folded up into the base of the child restraint. Although this was not the position of the adjustment leg as found by the police at the crash scene, this position allowed for 20 degrees of recline of the child restraint as illustrated in Photograph No. 51. In this position, the child restraint was approximately 120 mm (4.75") rearward of the passenger side air bag module cover flap. If this had been the position of the child restraint at the time of the crash, the module cover flap would not have contacted the back of the rear facing child restraint, or possibly contacted the upper aspect of the restraint if the restraint had rotated forward during the pre-impact braking effort.

The third scenario placed the child restraint in the position identified by the father with the restraint lying on the right front seat cushion. In this position, the air bag module cover flap would have opened over the top of the restraint, therefore the resultant damage to the restraint would not have occurred. This scenario could be excluded based on the contact damage to the restraint and module cover flap.



## PASSENGER (INFANT) POSITION/KINEMATICS

A fourth possible position for the child restraint placed the restraint forward on the vehicle's seat cushion with the recline adjustment leg in the down and locked position extending over the leading edge of the seat cushion (refer to Photograph No. 52). In this position, the child restraint had the greatest amount of recline (33 degrees) of the above positions and placed the back of the child restraint directly against the leading edge of the passenger side air bag module cover flap. The contact damage patterns on both the back of the child restraint and the air bag module cover flap were in direct alignment which supported this position as the position of the child seat at the time of the crash.

As the air bag system deployed, the leading edge of the top mounted passenger side air bag module cover flap expanded and opened against the upper back aspect of the rear facing child restraint. The contact fractured the ABS-type plastic shell of the child restraint and accelerated the restraint in a rearward direction with respect to the vehicle as the infant and the child restraint would have moved in a forward direction in response to the 12 o'clock impact force. As a result of the air bag module cover flap contact and subsequent expansion of the air bag against the child restraint, and the infant loading the restraint in response to the frontal crash forces, the infant sustained circumferential fractures of the occipital skull and the left and right parietal bones with brain matter exuding from the fracture sites, basilar skull fracture, extensive brain destruction with focal areas of hemorrhage and lacerations, generalized subarachnoid hemorrhage, contusion of the brain stem, massive subdural hematoma, and generalized swelling of the head with circumferential subgaleal hemorrhage. (These injuries, although listed and coded as separate injuries, qualify for the crushed skull code under the AIS-90 coding conventions.)

The child seat was displaced rearward by the deployment of the passenger side air bag into the right front seat back. The infant was probably thrust into the integral shoulder belt system of the child restraint and/or into the Accujust Shield. As a result of the latter contact sequence, the infant sustained a fracture left third rib. The infant and child restraint rebounded in a forward direction and came to rest on the right front seat cushion, restrained from forward movement by the deflating air bag, instrument panel, and the vehicle's lap belt.

The infant remained restrained within the [REDACTED] child restraint following the crash and air bag deployment. The child restraint presumably came to rest in a reclined orientation on the right front seat cushion of the Ford Escort with the upper aspect of the restraint resting against the passenger side air bag module cover flap as documented in Photograph No. 8 of the on-scene photographs. The base of the restraint was elevated off the vehicle's seat cushion, resting on the extended recline adjustment leg. The front of the restraint was resting against the mid aspect of the right front seat back. The semi-circular compressed fabric impressions on the seat back probably resulted from the restraint's contact and subsequent final rest against the seat back. The towel roll was lying on the right front floor of the vehicle, directly below the opened glove box.

The infant was removed from the child restraint and vehicle by a passing motorist. She was flown to a [REDACTED] Hospital in [REDACTED] PA, where she expired approximately 6 hours after the crash.



## **PASSENGER SIDE AIR BAG DEACTIVATION SWITCH CRITERIA**

██████ has established a criteria for manual deactivation of passenger side air bags for vehicles that can accommodate a child restraint in the right front position only, such as pickup trucks, sports cars, and certain types of passenger vehicles. The affected vehicles either have no rear seats or have rear seats that are too small to accommodate typical rear facing infant restraints and convertible child safety seats in their rear facing mode. Vehicles with rear seats that are eligible for the deactivation switch must have less than 720 mm (28.3") between the rearward surface of the front seat back and the forward surface of the rear seat back, measured longitudinally in a horizontal line tangent to the highest point of the rear seat cushion, and with the front seat adjusted to a mid track position. Specifications for the 1995 Ford Escort station wagon require the seat track to be adjusted to the twelfth latch position from the forward most latch position and the seat back angle adjusted to 15 degrees rearward of the vertical position.

An exemplar vehicle, a new 1995 Ford Escort station wagon, was located at a local Ford dealership, and was used a test vehicle for the deactivation switch criteria. The right front seat track was adjusted to the mid track, twelfth latch position and the seat back was adjusted to the 15 degrees of recline from the vertical position. A series of horizontal measurements were made at various elevations between the rearward surface of the front seat back and the forward aspect of the rear seat back. The results were as follows:

The standard requires the horizontal measurement to be made at the highest point of the rear seat cushion. In this particular vehicle, the leading edge of the cushion was the highest point, therefore the standard measurement was taken at this point. Using a tape measure calibrated in feet and inches, a horizontal measurement of 30.5" was obtained at this level. The 30.5" equates to a metric value of 774.7 mm which exceeded the required 720 mm. Therefore this vehicle, a 1995 Ford Escort station wagon, did not meet the requirements of less than 720 mm for installation of a passenger side air bag deactivation switch.

A second horizontal measurement was made at the lower third aspect of the rear seat back. This measurement was 30.0" which equated to a metric value 762 mm. At this level, the vehicle again, failed to qualify for a passenger side air bag deactivation switch.

The third horizontal measurement was taken at the top surface of the front seat back. At this level, the measurement was 31.5" which equated to 800.1 mm, 80.1 mm beyond the requirements for the deactivation switch.

The right front seat track was moved to the full rearward position to simulate the position of the right front seat of the accident involved vehicle. In this position, the above horizontal measurements were repeated to measure the minimum space that was available between the seat backs. The measurements at the three levels were as follows:



## **PASSENGER SIDE AIRBAG DEACTIVATION SWITCH CRITERIA (CONT'D.)**

At the highest level of the seat cushion, the horizontal distance was 26.5", or 673.1mm.

At the lower third level of the rear seat back, the minimum horizontal distance was 26.0", or 660.4 mm.

At the top level of the front seat back, the minimum horizontal distance was 28.0", or 711.2 mm.

All three dimensions were less than the 720 mm standard. Although this procedure was outside the specifications for the deactivation switch, the dimensions simply represent the minimum distance between the seat backs.

In addition to the above test procedure, an exemplar [REDACTED] child restraint was positioned in the right rear of the 1995 Ford Escort with the right front seat adjusted to the specified track and seat back positions. The child restraint was placed in the rearward facing mode in the three possible configurations. The purpose of this test was to document the available space between the child restraint and the front seat back and to determine if this particular [REDACTED] restraint would fit in the available space. The configurations and results are as follows:

The exemplar [REDACTED] was positioned in the rearward facing mode with the recline adjustment leg folded into the base of the restraint. In this position, the restraint was reclined at an angle of 23 degrees with a minimal horizontal distance of 95.3 mm (3.75") between the top of the restraint and the rearward edge of the front seat back.

The recline leg was subsequently extended in the down and locked position and the restraint was positioned fully onto the seat cushion. In this configuration, the restraint had 4 degrees of recline and the upper surface of the restraint was positioned 269.2 mm (10.6") rearward of the front seat back.

The third configuration of the child restraint involved placement of the recline leg over the forward edge of the rear seat cushion. In this position, the [REDACTED] had 24 degrees of recline and was resting against the rearward aspect of the right front head restraint.

The [REDACTED] child restraint was placed in the right front seat position in the three configurations previously identified with the seat track adjusted to the standard specification of mid track (12th latch position) and the seat back reclined 15 degrees from vertical. The results of this test are as follows:



## **PASSENGER SIDE AIR BAG DEACTIVATION SWITCH CRITERIA (CONT'D.)**

The [REDACTED] was positioned in the rearward facing mode with the recline leg folded into the base of the restraint. In this configuration, the restraint had 21.5 degrees of recline and was positioned 108.0 mm (4.25") rearward of the leading edge of the passenger side air bag module cover flap.

The recline leg was extended in the down and locked position and resting on the seat cushion. In this configuration, the restraint had a negative recline of -4 degrees (4 degrees rearward of vertical) and was positioned 182.9 mm (7.2") rearward of the leading edge of the passenger side air bag module cover flap. \

The third configuration placed the child restraint forward with the recline leg positioned over the leading edge of the right front seat cushion. In this position, the restraint had 24 degrees of recline and was resting against the leading edge of the passenger side module cover flap.

The right front seat track was subsequently adjusted to the full rearward position and the child restraint was left in the above configuration with the recline leg extended over the leading edge of the vehicle's seat cushion. The additional seat track adjustment provided the restraint with 33 degrees of recline, however, the upper shell of the restraint remained in contact with the leading edge of the passenger side air bag module cover flap.



**ATTACHMENT A**

**On-Scene Newspaper Photographs**





1. Overall view of the crash scene in an easterly direction.



2. Westerly view of the crash scene.





3. Final rest positions of the involved vehicles and extrication of the Ford Escort driver.



4. Additional view of the final rest positions and extrication efforts.





5. Extrication of the driver of the Toyota Camry.



6. Final rest positions of the vehicles and departure of the infant in the medivac helicopter.





7. Overall view of the Ford Escort and the child restraint in the right front seated position.



8. Close-up view of the probable final rest position of the Cosco Touriva child restraint in the right front position of the Ford escort.





9. Deployed passenger side air bag with child restraint removed from vehicle.



10. Overall view of the driver's position and deployed driver's side air bag.



**SELECTED PRINTS**  
**CALSPAN CASE NO. 95-16**

**LOCATION:**

**, PA**



**1. Pre-crash trajectory of the Ford Escort.**



**2. Trajectory of the Ford Escort at 46 m (150') pre-crash.**





3. Trajectory of the Ford Escort at 30 m (100') pre-crash.



4. Right front tire lock-up from the Ford Escort.





5. Impact and deflection of the right front skid mark.



6. Post-crash spin-out of the Ford Escort to final rest.





**7. Final rest position of the Ford Escort.**



**8. Pre-crash trajectory of the Toyota Camry.**





9. Trajectory of the Camry at 46 m (150') prior to impact with the Escort.



10. Trajectory of the Camry at 30 m (100') pre-crash.





11. Trajectory of the Camry at 15 m (50') and the probable impact location with the Butck.



12. Impact heading and post-crash rotation of the Toyota Camry.





13. Final rest position of the Toyota Camry.



14. Trajectory of the Buick LeSabre en route to impact with the utility pole.





15. Final rest position of the Buick LeSabre.



16. Pre-crash tire marks from the Chevrolet Monte Carlo.





17. Clockwise skid yaw pattern from the Chevrolet Monte Carlo.



18. Final rest position of the Monte Carlo.





19. **Frontal** view of the Ford Escort.



20. Close-up view of the direct contact damage on the bumper facia.





21. Longitudinal view of the crush pattern which supports the 12 o'clock direction of force.



22. Left front three quarter view of the Ford Escort.





23. & 24. Perpendicular views documenting the extent of frontal crush.





25. Left side view of the Ford Escort.



26. Left rear three-quarter view.





**27. Right side view of the Ford Escort.**



**28. Right front three-quarter view.**



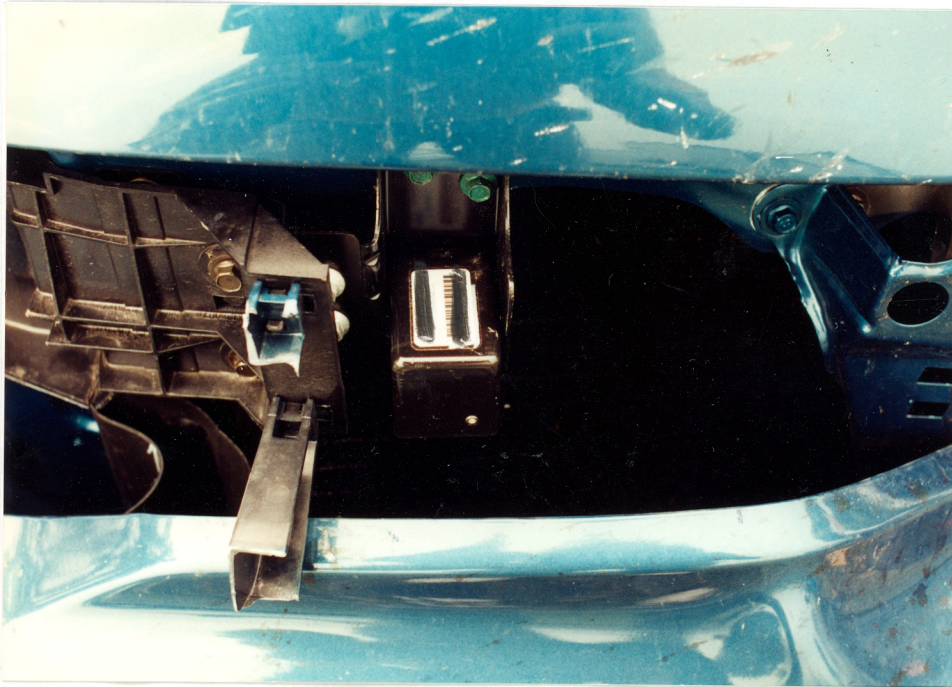


29. Right profile view documenting bumper displacement.



30. Front mounted air bag crash sensors (circled).





31. Right side air bag crash sensor.



32. Left side air bag crash sensor, slightly damaged and displaced.





33. Overall view of the driver's compartment and the deployed air bag.



34. Profile view of the driver's compartment.





35. Overall view of the driver's seated position and restraint systems.



36. Elongated stitching perforations on the driver's automatic shoulder belt webbing.





37. Driver loading transfers on the shoulder belt webbing.



38. Cut shoulder belt webbing and the manual lap belt.





39. & 40. Perpendicular views of the driver's side air bag module cover flaps and steering assembly.





41. Upper module cover flap and the top mounted vent ports.



42. Driver knee/leg contacts to the steering column cover and knee bolster.





43. Close-up view of the knee contacts to the bolster and column cover.



44. Driver's left hand contact to the windshield (tissue transfer).





45. Overall view of the deployed air bag and driver contact points from the rear seat area.



46. Warning label on both sunvisors.





47. Caution label on the inside surface of both sunvisors.



48. Warning label on headliner between sunvisors.





49. Position of the child restraint at the time of the crash.



50. Alternative position of child restraint with adjustment leg positioned on seat cushion  
(Note vertical orientation of restraint).





51. A second alternative position with the adjustment leg folded under restraint.



52. Additional view of the child restraint in its crash position against the passenger side air bag module cover flap.





53. Additional view of the restraint position with the lap belt in place.



54. Close-up view of the position of the adjustment leg.





55. Placement and fracture point of the restraint with respect to the module cover flap.



56. Vertical abrasions on the face of the flap at the parting seam.





57. Top hinge point of the passenger side module cover flap.



58. Overall view of the deployed passenger side air bag with child restraint removed.





59. Circular compression imprints in the right front seat back fabric from the base of the restraint.



60. Close-up view of the imprints From child restraint contact during the crash.





61. View of the child restraint from the driver's position.



62. Close-up view of the restraint and flap interaction from the left side.





63. Frontal view of the *Cosco Touriva* child restraint.



64. Left side view of the child restraint with the adjustment leg in the down and position.





65. Left side view of the child restraint with the adjustment leg folded up into the shell.



66. Restraint reclined 35 degrees from vertical with the adjustment leg folded up.





67. Right side view of the restraint.



68. Close-up view of the adjustment leg in the down position.





69. Warning label affixed to the left side of the child restraint.



70. Manufactured data and serial number affixed to the left side of the seat.



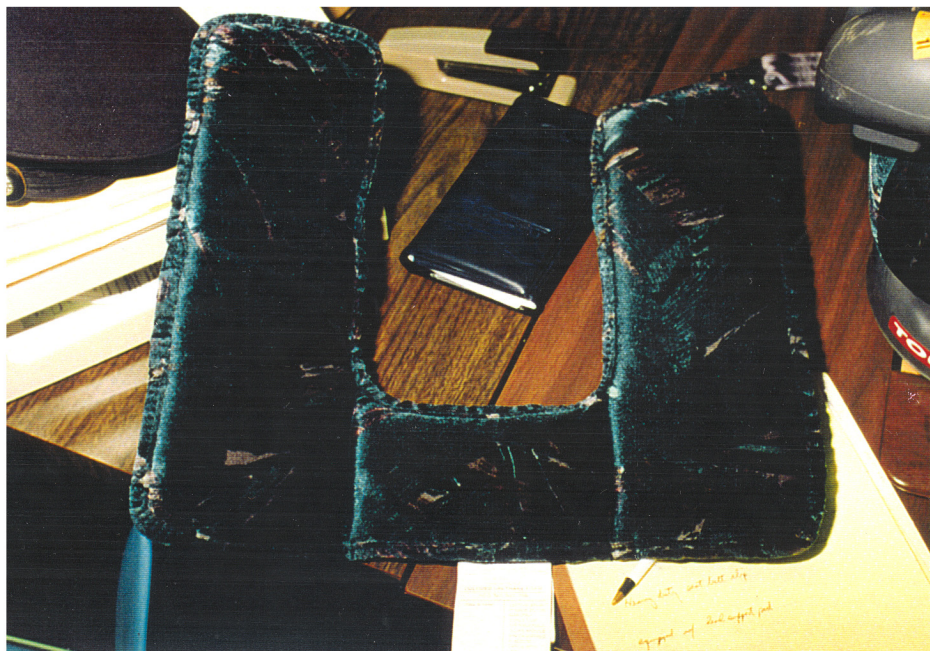


71. Integral shoulder harness of the child restraint.



72. Center clip and the bottom buckle point.





73. Head positioning pad that was placed in seat around the infant.



74. Accujest Pivoting Shield.



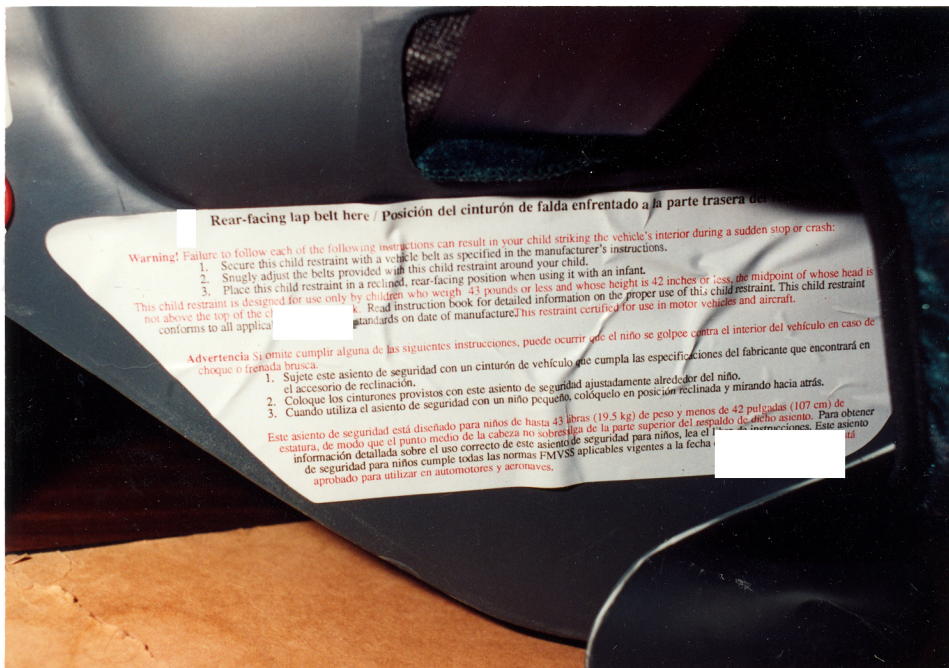


75. Integral buckle release button and adjustment tether.



76. Label affixed to the right side of the restraint regarding belt placement when used in the forward facing position.



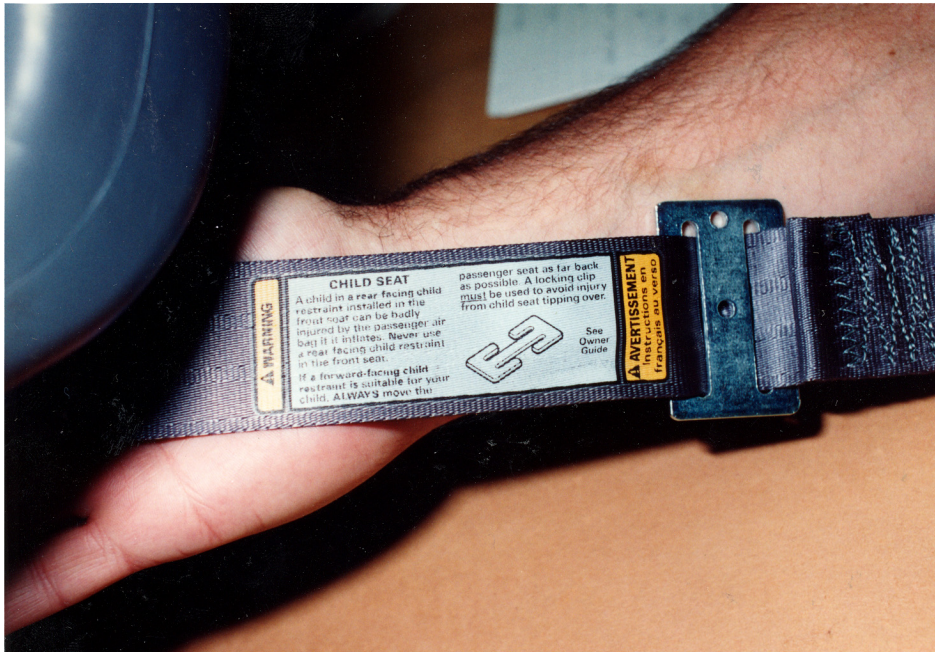


77. Label regarding placement of the lap belt when used in the rearward facing position.



78. Vehicle's lap belt properly placed through seat.





79. Warning label affixed to the vehicle's lap belt regarding the use of a locking clip.



80. Placement and improper usage of the locking clip.



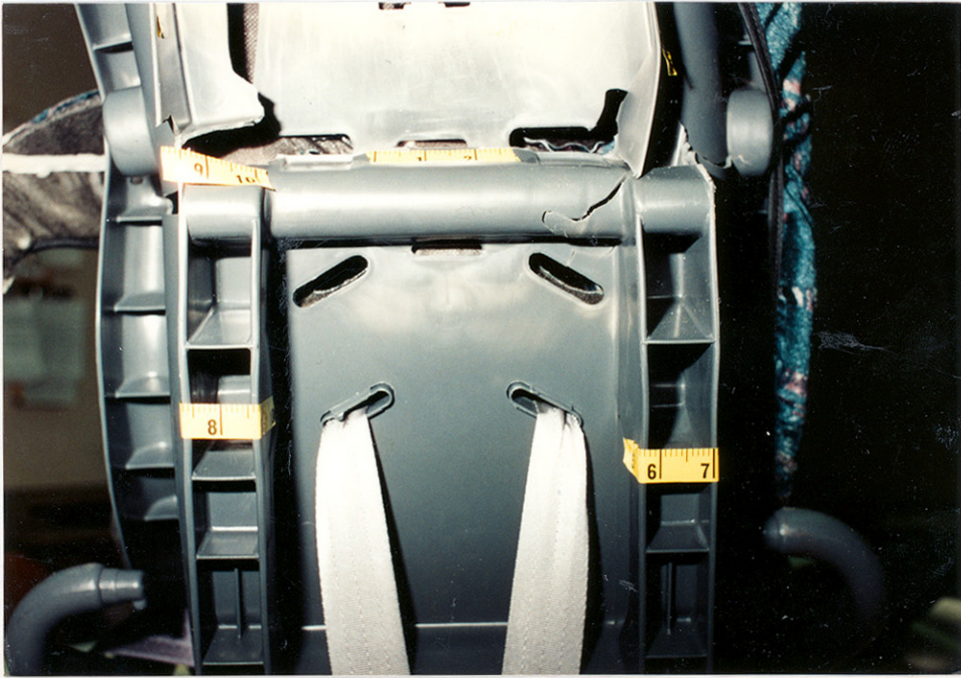


81. Profile view of the heavy-duty locking clip.

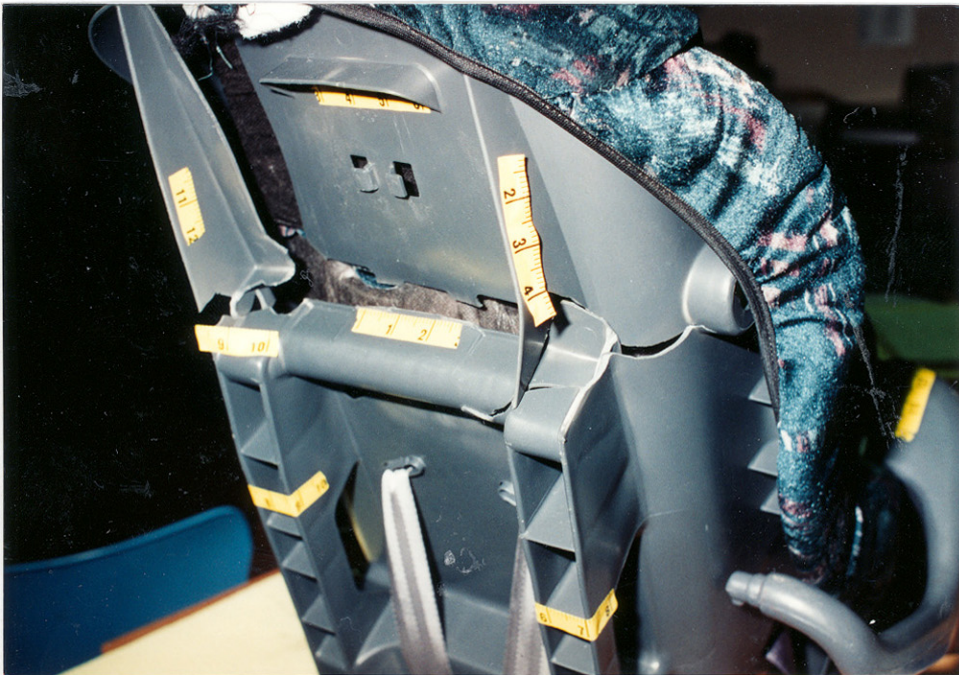


82. Rear view of the damage to the child restraint.





83. Placement of the integral shoulder harness through the back of the restraint.



84. Contact and fracture line through the upper shell of the restraint from air bag deployment.



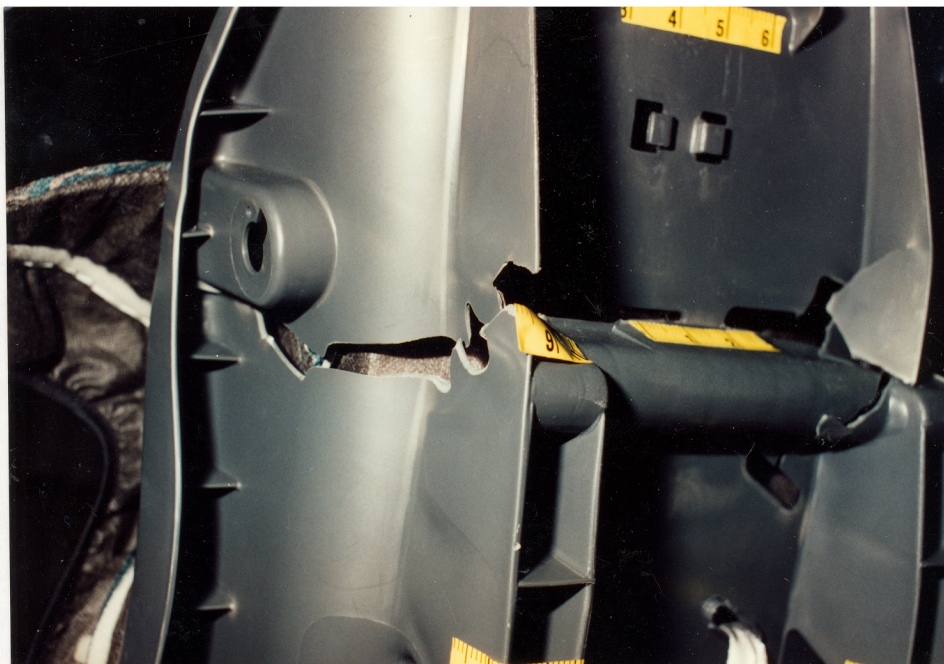


85. Vertical fracture line at the upper left quadrant of the restraint.



86. Fracture line through the right side of the shell ending at the shield pivot point.





87. Air bag contact on the vertical reinforcements of the shell.



88. Flap abrasion on the ABS plastic shell.



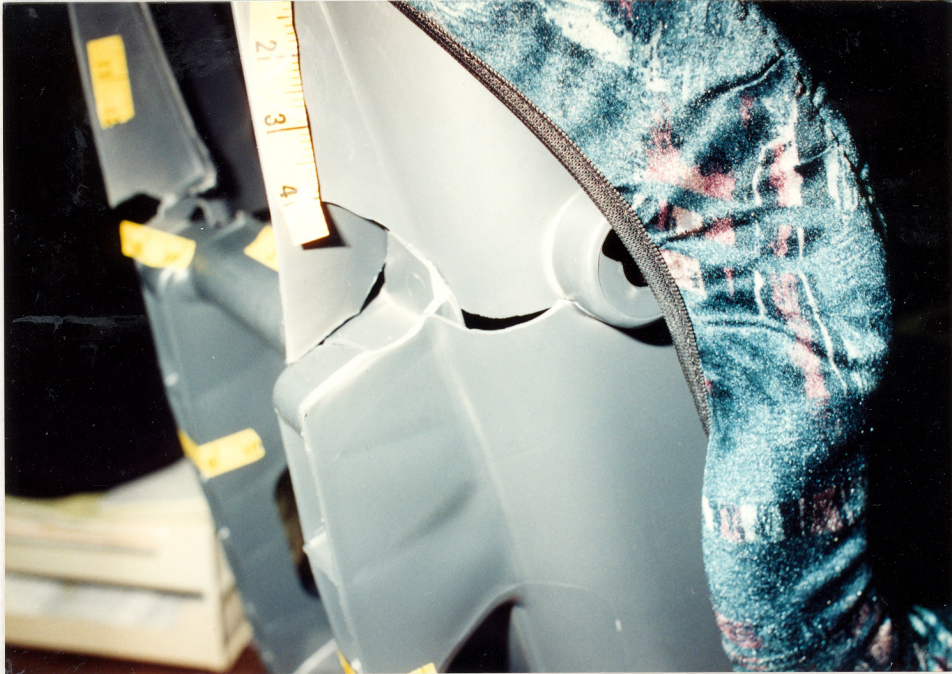


89. Close-up view of the lateral fracture line at the left side of the restraint.



90. Flap abrasion to the right side reinforcement.





91. Close-up view of the right lateral fracture line.



92. Abrasion/scuff mark on the right side of the shield.





93. Abrasion to the right side of the base from probable contact with the seat belt buckle.



94. Frontal damage to the Toyota Camry.





95. Left front three-quarter view.



96. Perpendicular view documenting the extent of crush at the left front corner.





**97. Left rear three-quarter view of the Toyota Camry.**



**98. Right rear three-quarter view.**





99. Right front three-quarter view.



100. Overall view of the driver's compartment of the Camry.





101. Automatic (motorized) shoulder belt.



102. Manual lap belt that was not used in this crash.





103. Left front three-quarter view of the Buick LeSabre.



104. Left side damage from the impact sequence with the Toyota Camry.





105. Extent of left side crush.



106. Left rear three-quarter view of the Buick LeSabre.





107. Right rear three-quarter view of the pole impact damage.



108. Close-up view showing the extent of right side crush.





109. Overall view of the pole impact damage.



110. Right front three-quarter view.



**ATTACHMENT C**

**Police Accident Report**



## COMMONWEALTH OF PENNSYLVANIA

## POLICE ACCIDENT REPORT

(XX) REFER TO OVERLAY SHEETS

REPORTABLE ☒ NON-REPORTABLE ☐

PENNDOT USE ONLY

## POLICE INFORMATION

1. INCIDENT NUMBER	
2. AGENCY NAME Police Department	
3. STATION/ PRECINCT	4. PATROL ZONE
5. INVESTIGATOR	BADGE NUMBER
6. APPROVED BY	BADGE NUMBER
7. INVESTIGATION DATE -95	8. ARRIVAL TIME 1427

## ACCIDENT INFORMATION

9. ACCIDENT DATE -95	10. DAY OF WEEK
11. TIME OF DAY 1423	12. NUMBER OF UNITS 4
13. # KILLED 1	14. # INJURED 2
15. PRIV. PROP. ACCIDENT Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
16. DID VEHICLE HAVE TO BE REMOVED FROM THE SCENE? UNIT 1 UNIT 2 Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
17. VEHICLE DAMAGE 0 - NONE UNIT 1 3 1 - LIGHT 2 - MODERATE 3 - SEVERE UNIT 2 3	
18. HAZARDOUS MATERIALS Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
19. PENNDOT PROPERTY Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	

## UNIT # 1

36. LEGALLY Y N PARKED? <input type="checkbox"/> <input type="checkbox"/>	37. REG. PLATE	38. STATE Pa
39. PA TITLE OR OUT-OF-STATE VIN		
40. OWNER		
41. OWNER ADDRESS		
42. CITY, STATE & ZIPCODE		
43. YEAR 1991	44. MAKE Toyota	(silver)
45. MODEL - (NOT BODY TYPE) Camry DX	46. INS. Y <input checked="" type="checkbox"/> N <input type="checkbox"/> UNK <input type="checkbox"/>	
(47) BODY TYPE 04	(48) SPECIAL USAGE 0	(49) VEHICLE OWNERSHIP 1
(50) INITIAL IMPACT POINT 12	(51) VEHICLE STATUS 0	(52) TRAVEL SPEED 30
(53) VEHICLE GRADIENT 2	(54) DRIVER PRESENCE 1	(55) DRIVER CONDITION 9
56. DRIVER NUMBER	57. STATE Pa	
58. DRIVER NAME		
59. DRIVER ADDRESS		
60. CITY, STATE & ZIPCODE		
61. SEX F	62. DATE OF BIRTH	63. PHONE
64. COMM. VEH. Y <input type="checkbox"/> N <input type="checkbox"/>	65. DRIVER CLASS	66. DRIVER SS #
67. CARRIER		
68. CARRIER ADDRESS		
69. CITY, STATE & ZIPCODE		
70. USDOT #	ICC #	PUC #
(72) VEH. CONFIG.	(73) CARGO BODY TYPE	74. GVWR
75. NO. OF AXLES	(76) HAZARDOUS MATERIALS	77. RELEASE OF HAZ MAT Y <input type="checkbox"/> N <input type="checkbox"/> UNK <input type="checkbox"/>

## ACCIDENT LOCATION

20. COUNTY	CODE
21. MUNICIPALITY Township	CODE

## PRINCIPAL ROADWAY INFORMATION

22. ROUTE NO. OR STREET NAME		
23. SPEED LIMIT 35	(24) TYPE HIGHWAY 0	(25) ACCESS CONTROL 1

## INTERSECTING ROAD:

26. ROUTE NO. OR STREET NAME		
27. SPEED LIMIT	(28) TYPE HIGHWAY	(29) ACCESS CONTROL

## IF NOT AT INTERSECTION:

30. CROSS STREET OR SEGMENT MARKER Rd.	
31. DIRECTION FROM SITE N S E W	32. DISTANCE FROM SITE 327' 11" Ft. MI.
33. DISTANCE WAS MEASURED <input checked="" type="checkbox"/> ESTIMATED <input type="checkbox"/>	
(34) CONSTRUCTION ZONE 0	(35) TRAFFIC CONTROL DEVICE PRINCIPAL 0 INTERSECTING -

## UNIT # 2

36. LEGALLY Y N PARKED? <input type="checkbox"/> <input type="checkbox"/>	37. REG. PLATE	38. STATE Pa
39. PA TITLE OR OUT-OF-STATE VIN		
40. OWNER		
41. OWNER ADDRESS		
42. CITY, STATE & ZIPCODE		
43. YEAR 1987	44. MAKE Buick	(blue/white)
45. MODEL - (NOT BODY TYPE) LeSabre	46. INS. Y <input checked="" type="checkbox"/> N <input type="checkbox"/> UNK <input type="checkbox"/>	
(47) BODY TYPE 04	(48) SPECIAL USAGE 0	(49) VEHICLE OWNERSHIP 1
(50) INITIAL IMPACT POINT 07	(51) VEHICLE STATUS 0	(52) TRAVEL SPEED 35
(53) VEHICLE GRADIENT 3	(54) DRIVER PRESENCE 1	(55) DRIVER CONDITION 1
56. DRIVER NUMBER	57. STATE Pa	
58. DRIVER NAME		
59. DRIVER ADDRESS		
60. CITY, STATE & ZIPCODE		
61. SEX M	62. DATE OF BIRTH	63. PHONE
64. COMM. VEH. Y <input type="checkbox"/> N <input type="checkbox"/>	65. DRIVER CLASS	66. DRIVER SS #
67. CARRIER		
68. CARRIER ADDRESS		
69. CITY, STATE & ZIPCODE		
70. USDOT #	ICC #	PUC #
(72) VEH. CONFIG.	(73) CARGO BODY TYPE	74. GVWR
75. NO. OF AXLES	(76) HAZARDOUS MATERIALS	77. RELEASE OF HAZ MAT Y <input type="checkbox"/> N <input type="checkbox"/> UNK <input type="checkbox"/>



**POLICE ACCIDENT REPORT**

PENNDOT USE ONLY

AA-45 (1/92)



78. RESPONDING EMS AGENCY [REDACTED]												INCIDENT #: [REDACTED]				
79. MEDICAL FACILITY [REDACTED] MedEvac												ACCIDENT DATE [REDACTED]-95				
80. PEOPLE INFORMATION																
A	B	C	D	E	F	G	NAME		ADDRESS		H	I	J	K	L	M
1	1	F	65	3	1	3	Operator of unit #1 [REDACTED]				3	9	6	A	6	1
2	1	M	47	3	1	0	Operator of unit #2 [REDACTED]				0	0	0	B	0	0
3	1	F	33	3	1	1-3	Operator of unit #3 ([REDACTED])				2	4	9	A	6	1
3	3	F	1	3-4	1	1	[REDACTED] (same as op #3)				1	7	2	C	4	2
4	1	F	47	3	1	0	Operator of unit #4 ([REDACTED])				0	0	0	B	0	0
81. ILLUMINATION			2		82. WEATHER			0		86. DIAGRAM <div style="border: 1px solid black; height: 100px; width: 100%; position: relative; margin-top: 10px;"> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em;">o</div> </div>						
83. ROAD SURFACE			1													
84. PENNSYLVANIA SCHOOL DISTRICT (IF APPLICABLE)																
85. DESCRIPTION OF DAMAGED PROPERTY																
pole [REDACTED]																
OWNER [REDACTED]																
ADDRESS [REDACTED]																
PHONE [REDACTED]																
87. NARRATIVE - IDENTIFY PRECIPITATING EVENTS, CAUSATION FACTORS, SEQUENCES OF EVENTS, WITNESS STATEMENTS, AND PROVIDE ADDITIONAL DETAILS, LIKE INSURANCE INFORMATION AND LOCATION OF TOWED VEHICLES, IF KNOWN.																
Statement from the operator of unit #1 [REDACTED]																
At accident scene investigating officer could not speak with operator [REDACTED] At hospital ER operator [REDACTED] could not remember what happened.																
Interview on [REDACTED]-95 1010 hours. Investigating officer spoke with operator [REDACTED] at her residence. She stated that she recalled leaving work on the day of the accident. She recalls traveling west on [REDACTED] as she usually does on her way home. She recalls thinking that she was almost home but does not recall anything from that point until she felt a "bang" and then chest pain. [REDACTED] further stated that she felt comfortable on her way home from work and was experiencing no medical problems and taking no medications.																
INSURANCE INFORMATION		COMPANY [REDACTED] Insurance				INSURANCE INFORMATION		COMPANY [REDACTED]								
UNIT 1		POLICY NO [REDACTED]				UNIT 2		POLICY NO [REDACTED]								
88. WITNESSES		NAME [REDACTED]				ADDRESS [REDACTED]				PHONE [REDACTED]						
		NAME [REDACTED]				ADDRESS [REDACTED] Pa [REDACTED]				PHONE [REDACTED]						
89. VIOLATIONS INDICATED								90. SECTION NUMBERS (ONLY IF CHARGED)								
UNIT 1 PENDING								TC NTC								
UNIT 2																
91. PROBABLE USE		92. TYPE TEST		93. RESULTS		91. PROBABLE USE		92. TYPE TEST		93. RESULTS		94. INVESTIGATION COMPLETE? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				
UNIT 1 0		0		0. ____ % <input type="checkbox"/> NO TEST <input type="checkbox"/> REFUSE <input type="checkbox"/> UNK		UNIT 2 0		0		0. ____ % <input type="checkbox"/> NO TEST <input type="checkbox"/> REFUSE <input type="checkbox"/> UNK						



78. RESPONDING EMS AGENCY						INCIDENT #:					
79. MEDICAL FACILITY						MedEvac					
						ACCIDENT DATE: -95					

80. PEOPLE INFORMATION																			
A	B	C	D	E	F	G	NAME					ADDRESS	H	I	J	K	L	M	

(81.) ILLUMINATION <input type="checkbox"/> (82.) WEATHER <input type="checkbox"/> (83.) ROAD SURFACE <input type="checkbox"/>	86. DIAGRAM <div style="border: 1px solid black; height: 100px; width: 100%; margin-top: 10px;"></div>
84. PENNSYLVANIA SCHOOL DISTRICT (IF APPLICABLE) <input checked="" type="checkbox"/>	
85. DESCRIPTION OF DAMAGED PROPERTY	
OWNER	
ADRESS	
PHONE	

87. NARRATIVE - IDENTIFY PRECIPITATING EVENTS, CAUSATION FACTORS, SEQUENCES OF EVENTS, WITNESS STATEMENTS, AND PROVIDE ADDITIONAL DETAILS, LIKE INSURANCE INFORMATION AND LOCATION OF TOWED VEHICLES, IF KNOWN.

Statement of witness

Witness stated that he was east on in his 1990 Dodge Caravan at about 35 MPH with his wife in the passenger seat. He advises that there were no other cars in front of him when he noticed a gray vehicle traveling west on . He noticed that this vehicle was riding close to the center of the roadway and then started drifting slowly into the east bound lane. As the vehicle got closer it occupied more of the east bound lane causing him to swerve out of its path. He states that he had to leave the road to avoid impact with this vehicle. As he brought his vehicle to a stop he states that he heard two bangs and looked in his rear view mirror. He the realized that there was an accident and turned his vehicle around. He then went to assist those involved.

INSURANCE INFORMATION	COMPANY	INSURANCE INFORMATION	COMPANY
UNIT 3	POLICY NO	UNIT 4	POLICY NO

88. WITNESSES	NAME	ADDRESS	PHONE
	NAME	ADDRESS	PHONE

89. VIOLATIONS INDICATED	90. SECTION NUMBERS (ONLY IF CHARGED) TC NTC
UNIT 3	<input type="checkbox"/> <input type="checkbox"/>
UNIT 4	<input type="checkbox"/> <input type="checkbox"/>

(91.) PROBABLE USE	(92.) TYPE TEST	(93.) RESULTS	(91.) PROBABLE USE	(92.) TYPE TEST	(93.) RESULTS	94. INVESTIGATION COMPLETE? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
UNIT 3 0	0	0. %	UNIT 4 0	0	0. %	



**COMMONWEALTH OF PENNSYLVANIA  
PAR CONTINUATION SHEET**

XX. REFER TO OVERLAY SHEETS

REPORTABLE ☒ NON-REPORTABLE ☐

PENNDOT USE ONLY

INCIDENT NUMBER	ACCIDENT DATE	COUNTY CODE	MUNICIPAL CODE
-----------------	---------------	-------------	----------------

(82) PERSON INFORMATION - USE OVERLAY # 2 SHEET FOR CODES

A	B	C	D	E	F	G	NAME	ADDRESS	H	I	J	K	L	M

87. NARRATIVE: Statement from operator of unit #2 ( )

Operator states he was traveling east on ( ) between 35 and 40 MPH. He had just crossed the intersection of ( ) & ( ) Rd, when he noticed a van traveling east in front of him. He then noticed a grey vehicle traveling west on ( ) and that this vehicle was being operated close to the center lines of the roadway. As the grey vehicle got closer he could see that it was starting to cross over into his lane. He also states that it appeared that the vehicle had picked up speed as it got closer. He then realized that he had to get out of the vehicles path and turned his vehicle to the right to avoid impact. He was then struck on the drivers side rear quarter by the grey vehicle. After impact he collided with a ( ) pole on the south side of ( ). Impact occurred on the passenger side rear quarter. He then realized that the vehicle that struck him continued east on ( ) and struck another east bound vehicle. After he got his vehicle stopped he went to aid the parties in the cars behind him.

Statement from the operator of unit #4 ( )

Operator states she was east on ( ) and had just proceeded through the intersection of ( ) & ( ) Rd. when she heard a loud crash. As she crested the small rise she could see that an accident had just occurred and that some of the vehicles were just coming to rest. She applied her brakes and turned her wheels to the right to avoid impact with a station wagon. She states she was unable to bring her vehicle to a complete stop and struck the station wagon on the drivers side rear door. She advised that the impact was minor. After impact she exited her vehicle and went to assist the other operators of the vehicles involved.

89. DESCRIBE VIOLATIONS					90. SECTION NUMBERS (ONLY IF CHARGED)					TC	NTC
UNIT 1											
UNIT 2											

91. PROBABLE USE	92. TYPE TEST	93. RESULTS	91. PROBABLE USE	92. TYPE TEST	93. RESULTS	94. INVESTIGATION COMPLETE ?
UNIT 1		0. ____ % <input type="checkbox"/> NO TEST <input type="checkbox"/> REFUSE <input type="checkbox"/> UNK	UNIT 2		0. ____ % <input type="checkbox"/> NO TEST <input type="checkbox"/> REFUSE <input type="checkbox"/> UNK	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>



# COMMONWEALTH OF PENNSYLVANIA PAR CONTINUATION SHEET

XX REFER TO OVERLAY SHEETS

REPORTABLE ☒ NON-REPORTABLE ☐

PENNDOT USE ONLY

INCIDENT NUMBER <span style="background-color: black; color: black;">[REDACTED]</span>	ACCIDENT DATE <span style="background-color: black; color: black;">[REDACTED]</span> -95	COUNTY CODE <span style="background-color: black; color: black;">[REDACTED]</span>	MUNICIPAL CODE <span style="background-color: black; color: black;">[REDACTED]</span>
--	--	--	---

(82) PERSON INFORMATION - USE OVERLAY # 2 SHEET FOR CODES

NAME							ADDRESS							H	I	J	K	L	M

87. NARRATIVE:

Statement of witness [REDACTED]

Witness states that he was west on [REDACTED] At the intersection of [REDACTED] unit #1 came to his attention when it drifted into the east bound approaching lane. The car continued west and crossed over in the area of [REDACTED] & [REDACTED] This time there were two cars approaching. Witness was about three car lengths behind unit #1 with no one in between. As the car approached he states he heard car horns at which time unit #1 jerked back into its lane. They continued west on [REDACTED] crossing the intersection of [REDACTED]

The witness observed unit #1 drift towards the center of the roadway again and noticed a van approaching in the east bound lane. He observed unit #1 cross over and into the east bound lane at which time the van swerved off the south side of the roadway to avoid impact. Witness then observed another vehicle (unit #2) approaching in the east bound lane a short distance behind the van. This vehicle was observed trying to avoid impact by also swerving to the right but was struck in the drivers side rear quarter. After impact the unit struck a utility pole. The witness states that unit #1 continued in the east bound lane and struck an aqua colored station wagon that was also traveling east on [REDACTED]. Witness stated that upon impact it appeared that the rear of both units 1 and 3 lifted and turned slightly before coming to rest. Another east bound vehicle was observed attempting to stop but struck the drivers side passenger door of unit #3 that had just come to a stop.

Witness states that at no time did he see brake lights from unit #1 (Toyota/[REDACTED]).

89. DESCRIBE VIOLATIONS				90. SECTION NUMBERS (ONLY IF CHARGED)				TC	NTC
UNIT 1									
UNIT 2									

91. PROBABLE USE	92. TYPE TEST	93. RESULTS	91. PROBABLE USE	92. TYPE TEST	93. RESULTS	94. INVESTIGATION COMPLETE ?
UNIT 1		0.____%	UNIT 2		0.____%	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>



**COMMONWEALTH OF PENNSYLVANIA  
PAR CONTINUATION SHEET**

(XX) REFER TO OVERLAY SHEETS

REPORTABLE ☒ NON-REPORTABLE ☐

PENNDOT USE ONLY

INCIDENT NUMBER <span style="background-color: black; color: black;">[REDACTED]</span>	ACCIDENT DATE <span style="background-color: black; color: black;">[REDACTED]</span> 95	COUNTY CODE <span style="background-color: black; color: black;">[REDACTED]</span>	MUNICIPAL CODE <span style="background-color: black; color: black;">[REDACTED]</span>
--	---	--	---

(82) PERSON INFORMATION - USE OVERLAY # 2 SHEET FOR CODES

A	B	C	D	E	F	G	NAME	ADDRESS	H	I	J	K	L	M

87. NARRATIVE: Officers' investigation: Unit #1 [REDACTED] is traveling west on [REDACTED] -

Witness [REDACTED] traveling a few car lengths behind first realizes that [REDACTED] is in front of him when he see her drift over the center line in the area of [REDACTED] & [REDACTED]. He sees unit 1 return to her lane and continue west on [REDACTED]. In the area of [REDACTED] & [REDACTED] d. witness [REDACTED] sees unit #1 again drift over the center lines at which time two on coming vehicles are sounding their horns [REDACTED] states that unit #1 immediately jerks back into the west bound lane. They continue traveling west on [REDACTED] and cross over the intersection of [REDACTED] then observes a van approaching in the east bound lane. Witness [REDACTED] is operating the van and states that he saw that unit #1 was being operated near and one the center line of the roadway. As unit #1 got closer it started to cross over into the east bound lane causing [REDACTED] to swerve off the roadway to avoid impact. Witness [REDACTED] then sees another vehicle approaching in the east bound lane. This vehicle, unit #2 attempts to get out of the path of unit #1 but is struck on the drivers side rear quarter causing the vehicle to leave the roadway and strike a utility pole. The operator of unit #2 [REDACTED] stated that he saw unit #1 close to the center of the roadway and cross over into the east bound lane but was unable to avoid being struck. Witness [REDACTED] now sees unit #3 east on [REDACTED] with unit #1 now being entirely in the east bound lane. It appears that the operator of unit #3 turned to the right to avoid impact but was struck by unit #1. Impact occured driver to driver. Unit #4 was also traveling east on [REDACTED] - the operator [REDACTED] stated that she heard the crash but by the time she saw what was happening she was unable to bring her vehicle to stop and struck unit #3.

A baby was in the front of unit #3. The baby was in a car seat facing rear when the passenger side air bag deployed.

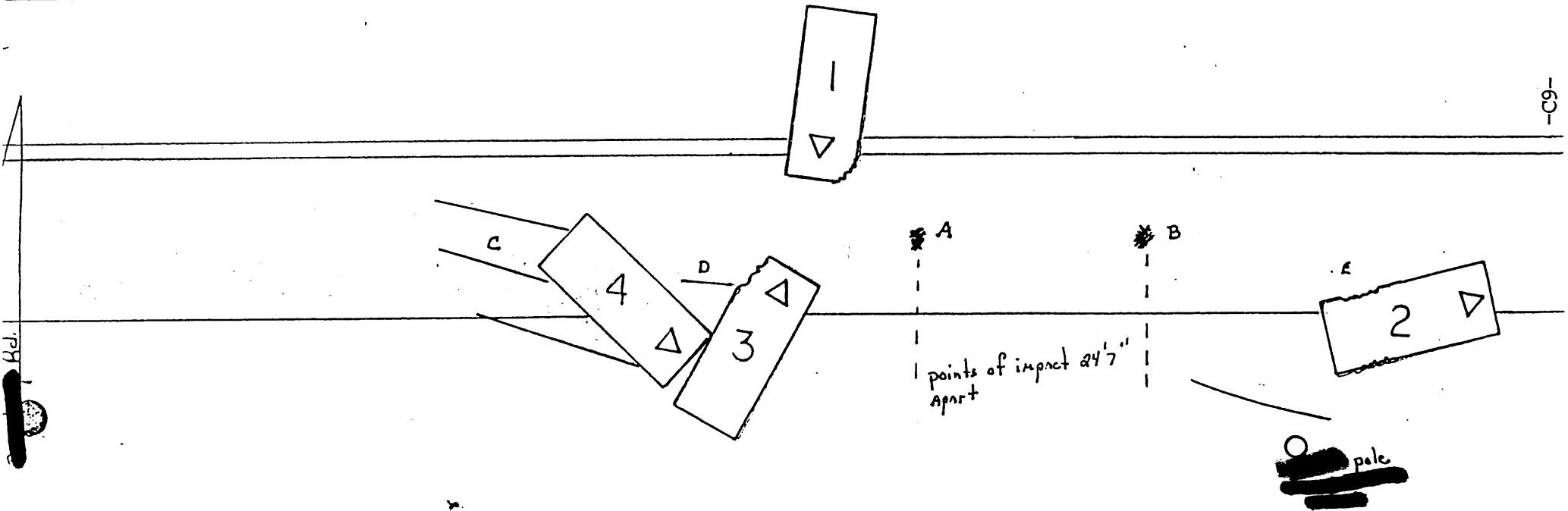
89. DESCRIBE VIOLATIONS					90. SECTION NUMBERS (ONLY IF CHARGED)					TC	NTC		
UNIT 1													
UNIT 2													
91. PROBABLE USE		92. TYPE TEST		93. RESULTS		91. PROBABLE USE		92. TYPE TEST		93. RESULTS		94. INVESTIGATION COMPLETE ?	
UNIT 1				0. ____ %		UNIT 2				0. ____ %		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
				<input type="checkbox"/> NO TEST <input type="checkbox"/> REFUSE <input type="checkbox"/> UNK						<input type="checkbox"/> NO TEST <input type="checkbox"/> REFUSE <input type="checkbox"/> UNK			



Accident scene at location of speed  
zone change. East 45 MPH zone,  
West 35 MPH zone.



Width of roadway 22'8"



A = impact #1+3 320'11" east of [redacted] Rd.

B = impact #1+2 24'7" from A

C = skid from #1 @ rear 32'2" @ rear 23'

Not to Scale



## POLICE ACCIDENT REPORT - Overlay Sheet - 1

92

ACCIDENT LOCATION FIELDS		47. BODY TYPE (CONTINUED)		47. BODYTYPE (CONTINUED)		50. INITIAL IMPACT POINT	
<b>24. &amp; 28. TYPE HIGHWAY</b> 0 - NOT PHYSICALLY DIVIDED 1 - DIVIDED HIGHWAY - MEDIAN STRIP WITHOUT TRAFFIC BARRIER 2 - DIVIDED HIGHWAY - MEDIAN STRIP WITH TRAFFIC BARRIER N - ONE WAY TRAFFIC NORTH S - ONE WAY TRAFFIC SOUTH E - ONE WAY TRAFFIC EAST W - ONE WAY TRAFFIC WEST		<b>AUTOMOBILES CONTINUED</b> 08 - OTHER AUTOMOBILE 09 - UNKNOWN AUTOMOBILE 10 - AUTOMOBILE BASED PICK-UP 11 - AUTOMOBILE BASED PANEL 12 - SHC RT UTILITY 13 - LARGE LIMOUSINE 14 - THREE WHEEL AUTO OR DERIVATIVE  <b>MOTORCYCLES</b> 20 - MOTORCYCLE 21 - MOPED 27 - THREE WHEEL MOTORCYCLE OR MOPED 28 - MINIBIKE, MOTORSCOOTER 29 - UNKNOWN MOTORCYCLE  <b>BUSES</b> 30 - SCHOOL BUS 31 - CROSS COUNTRY/INTERCITY 32 - TRANSIT BUS 38 - OTHER BUS 39 - UNKNOWN BUS TYPE  <b>VANS</b> 40 - VAN 41 - VAN COMMERCIAL CUTAWAY 42 - VAN BASED MOTORHOME 48 - OTHER VAN TYPE 49 - UNKNOWN VAN TYPE  <b>LIGHT TRUCKS (GVWR &lt; 10,000#)</b> 50 - PICK - UP 51 - PICKUP WITH SLIDE IN CAMPER 52 - PICKUP BASED MOTORHOME 53 - CAB CHASSIS BASED 54 - TRUCK BASED PANEL 55 - TRUCK BASED STATION WAGON 56 - TRUCK BASED UTILITY 58 - OTHER LIGHT TRUCK 59 - UNKNOWN LIGHT TRUCK TYPE 67 - STATIONWAGON - BASE BODY TYPE UNKNOWN 68 - UTILITY - BASE BODY TYPE UNKNOWN 69 - UNKNOWN LIGHT TRUCK  <b>MEDIUM/HEAVY TRUCKS</b> 70 - SINGLE UNIT STRAIGHT TRUCK 73 - MEDIUM/HEAVY TRUCK BASED MOTORHOME 74 - TRUCK TRACTOR (CAB) 75 - UNKNOWN IF SINGLE UNIT OR COMBINATION TRUCK 77 - CAMPER OR MOTORHOME UNKNOWN TRUCK TYPE 79 - UNKNOWN TRUCK TYPE		<b>OTHER MOTORIZED VEHICLE</b> 80 - SNOWMOBILE 81 - FARM EQUIPMENT 82 - ATV 83 - CONSTRUCTION EQUIPMENT 88 - OTHER UNSPECIFIED VEHICLE 89 - UNKNOWN OTHER MOTORIZED VEHICLES  <b>NON-MOTORIZED UNITS</b> 90 - UNICYCLE, BICYCLE, TRICYCLE 91 - OTHER PEDALCYCLE (BIG WHEEL) 92 - UNKNOWN PEDALCYCLE 93 - HORSE AND BUGGY 94 - HORSE AND RIDER  <b>TRACK VEHICLES</b> 95 - TRAIN 96 - TROLLEY  <b>IF NOTHING ELSE</b> 98 - OTHER BODY TYPE 99 - UNKNOWN BODY TYPE		0 - NO IMPACT OR CONTACT 1 - 12 CLOCK POINTS 13 - TOP 14 - UNDERCARRIAGE 15 - TOWED UNIT 99 - UNKNOWN  	
<b>25. &amp; 29. ACCESS CONTROL</b> 1 - NO CONTROLS (UNLIMITED ACCESS) 2 - FULL CONTROL (ONLY RAMP ENTRY AND EXIT) 8 - OTHER 9 - UNKNOWN						<b>51. VEHICLE STATUS</b> 0 - NOT APPLICABLE 1 - LEGALLY PARKED 2 - ILLEGALLY PARKED - ON ROAD 3 - ILLEGALLY PARKED - OFF ROAD 4 - HIT AND RUN 5 - DISABLED FROM PREVIOUS ACCIDENT	
<b>34. CONSTRUCTION ZONE</b> 0 - NOT APPLICABLE 1 - CONSTRUCTION ZONE 2 - MAINTENANCE ZONE 3 - UTILITY COMPANY WORK 9 - UNKNOWN						<b>52. TRAVEL SPEED</b> 00 - STOPPED OR PARKED 01 - 97 ACTUAL OR ESTIMATED SPEED 98 - 98 MPH OR GREATER 99 - UNKNOWN	
<b>35. TRAFFIC CONTROL DEVICE</b> 0 - NO CONTROLS 1 - FLASHING SIGNALS 2 - TRAFFIC SIGNAL 3 - STOP SIGN 4 - YIELD SIGN 5 - RR CROSSING 6 - POLICE OFFICER OR FLAGMAN 7 - FLASHING SCHOOL ZONE 8 - OTHER 9 - UNKNOWN						<b>53. VEHICLE GRADIENT</b> 1 - LEVEL ROADWAY 2 - UP HILL 3 - DOWN HILL 4 - SAG (BOTTOM OF HILL) 5 - CREST (TOP OF HILL)	
<b>UNIT INFORMATION FIELDS</b>						<b>IF DRIVER PRESENCE = 2, THEN DO NOT ENTER DATA FOR THE OPERATOR</b>	
<b>47. BODY TYPE</b>  <b>AUTOMOBILES</b> 01 - CONVERTIBLE 02 - 2 DOOR 03 - 3 DOOR (HATCH BACK, 2 DR) 04 - 4 DOOR 05 - 5 DOOR (HATCH BACK, 4 DR) 06 - STATION WAGON 07 - HATCH BACK NUMBER DOORS UNKNOWN				<b>48. SPECIAL USAGE</b> 0 - NOT APPLICABLE 1 - PUPIL TRANSPORT 2 - FIRE VEHICLE 3 - AMBULANCE 4 - OTHER EMERGENCY VEHICLE 5 - POLICE VEHICLE 6 - TRACTOR TRAILER 7 - TWIN TRAILER 11 - COMMERCIAL PASSENGER 12 - TOWING PASSENGER VEHICLE 13 - TOW TRUCK 14 - TOWING UTILITY TRAILER 15 - TOWING MOBILE OR MODULAR HOME 16 - TOWING CAMPER 20 - MODIFIED VEHICLE		<b>54. DRIVER PRESENCE</b> 1 - DRIVER OPERATED VEHICLE 2 - DRIVERLESS VEHICLE 3 - DRIVER LEFT SCENE (AFTER ACCIDENT)	
		<b>49. VEHICLE OWNERSHIP</b> 1 - PRIVATE VEHICLE OWNED BY DRIVER 2 - PRIVATE VEHICLE OWNED BY ANOTHER 3 - RENTED VEHICLE 4 - STATE POLICE VEHICLE 5 - PENNDOT VEHICLE 6 - OTHER COMMONWEALTH VEH. 7 - MUNICIPAL POLICE VEHICLE 8 - OTHER MUNICIPAL GOVT VEH 9 - FEDERAL GOVERNMENT VEH. 10 - COMMERCIAL VEHICLE 11 - PUPIL TRANSPORT CARRIER 98 - OTHER 99 - UNKNOWN		<b>55. DRIVER CONDITION</b> 1 - APPEARED NORMAL 2 - HAD BEEN DRINKING 3 - ILLEGAL DRUG USE 4 - SICK 5 - FATIGUE 6 - ASLEEP 7 - MEDICATION 9 - UNKNOWN			



## POLICE ACCIDENT REPORT - Overlay Sheet - 2

92

<b>72. VEHICLE CONFIGURATION</b> 1 - BUS 2 - SINGLE UNIT (2 AXLES, 6 TIRES) 3 - SINGLE UNIT (3 + AXLES) 4 - TRUCK TRACTOR (BOBTAIL) 5 - TRUCK TRAILER 6 - TRACTOR/SEMI-TRAILER 7 - TRACTOR/DOUBLES 8 - TRACTOR/TRIPLES 9 - UNKNOWN HEAVY TRUCK	<b>80. UNIT NUMBERS - BLOCK A</b> CODE UNIT NUMBERS AS RECORDED ON PAGE 1.  <b>80. SEAT POSITION - BLOCK B</b> 1 - DRIVER 2 - MIDDLE FRONT 3 - RIGHT FRONT 4 - LEFT REAR 5 - MIDDLE REAR 6 - RIGHT REAR 7 - PEDESTRIAN 8 - OTHER SEAT POSITION 9 - UNKNOWN	<b>80. TYPE OF INJURY - BLOCK I</b> 0 - NO INJURY A 1 - AMPUTATION G 2 - BLEEDING WOUND A 3 - BROKEN BONES A 4 - DISTORTED MEMBER B 5 - BRUISES/ABRASIONS E 6 - BURNS C 7 - SWELLING C 8 - LIMPING - <i>Treat as pain do not code</i> C 9 - COMPLAINT OF PAIN A 97 - OTHER INCAPACITATING INJURY B 98 - OTHER NON-INCAPACITATING 99 - UNKNOWN	(CONTINUED FROM BELOW) - BLOCK M 2 - HELICOPTER 3 - FIRE RESCUE VEHICLE 4 - PRIVATE VEHICLE 5 - POLICE VEHICLE 8 - OTHER 9 - UNKNOWN
<b>73. CARGO BODY TYPE</b> 1 - BUS 2 - VAN / ENCLOSED BOX 3 - CARGO TANK 4 - FLATBED 5 - DUMP 6 - CONCRETE MIXER 7 - AUTO TRANSPORT 8 - GARBAGE / REFUSE 9 - OTHER / UNKNOWN	<b>80. SEX - BLOCK C</b> M - MALE F - FEMALE U - UNKNOWN  <b>80. AGE - BLOCK D</b> CODE ACTUAL AGE, EXCEPT FOR 1 - FOR INFANTS UP TO AGE 2 98 - AGE 98 OR GREATER 99 - UNKNOWN	<b>80. AREA OF APPARENT INJURY</b> - BLOCK J 0 - NO INJURY 1 - FACE 2 - HEAD 3 - NECK 4 - BACK 5 - ARM(S) 6 - LEG(S) 7 - CHEST/STOMACH 8 - INTERNAL 9 - ENTIRE BODY 98 - OTHER AREAS 99 - UNKNOWN	<b>81. ILLUMINATION</b> 1 - DAWN 2 - DAYLIGHT 3 - DARK - STREET LIGHTS 4 - DARK - NO STREET LIGHTS 5 - DUSK
<b>76. HAZARDOUS MATERIALS</b>  CODE THE 4 DIGIT HAZARDOUS MATERIAL CODE ON THE PLACARD OR  SELECT ONE OF THE FOLLOWING CODES TO REPRESENT THE PLACARD. 00 - NOT APPLICABLE 01 - NON-FLAMMABLE GAS 02 - COMBUSTIBLE 03 - ORGANIC PEROXIDE 04 - CORROSIVE 05 - EXPLOSIVES "A" 06 - OXYGEN 07 - POISON 08 - EXPLOSIVES "B" 09 - CHLORINE 10 - OXIDIZER 11 - POISONOUS GAS 12 - FUEL OIL 13 - DANGEROUS 14 - RADIOACTIVE 15 - FLAMMABLE SOLID "W" 16 - FLAMMABLE 17 - FLAMMABLE GAS 18 - FLAMMABLE SOLID 19 - GASOLINE 20 - BLASTING AGENT 98 - OTHER NOT SIGNED 99 - UNKNOWN	<b>80. ACTIVE RESTRAINT TYPE</b> - BLOCK E 0 - NONE OR PEDESTRIAN 1 - SHOULDER HARNESS ONLY 2 - SEAT BELT ONLY 3 - COMBINATION (HARNESS & BELT) 4 - CHILD RESTRAINT DEVICE 7 - HELMET 8 - OTHER 9 - UNKNOWN	<b>80. INJURY INFORMATION SOURCE</b> - BLOCK K N - NOT APPLICABLE A - OBSERVATION OF OFFICER B - STATEMENT FROM INDIVIDUAL C - MEDICAL/PARAMEDICAL PERSONNEL	<b>82. WEATHER</b> 0 - NO ADVERSE CONDITIONS 1 - RAINING 2 - SLEET, HAIL, FREEZING RAIN 3 - SNOWING 4 - FOG, SMOKE 5 - RAIN AND FOG
OR  CODE THE 1 DIGIT HAZARDOUS MATERIAL CODE ON THE PLACARD	<b>80. ACTIVE RESTRAINT USAGE</b> - BLOCK F 0 - NOT APPLICABLE 1 - IN USE 2 - NOT IN USE 9 - UNKNOWN  <b>80. PASSIVE RESTRAINT TYPE</b> - BLOCK G 0 - NONE OR PEDESTRIAN 1 - AIRBAG (DEPLOYED) 2 - AIR BAG (NOT DEPLOYED) 3 - AUTOMATIC SEAT BELT 8 - OTHER 9 - UNKNOWN	<b>80. EJECTION/EXTRICATION</b> - BLOCK L 0 - NOT APPLICABLE 1 - TOTALLY EJECTED 2 - PARTIALLY EJECTED 3 - PARTIALLY EJECTED REQUIRING EXTRICATION 4 - EXTRICATION BY PERSONS UNKNOWN 5 - EXTRICATION - TWO OR MORE TYPES 6 - EXTRICATION BY AMBULANCE OR RESCUE PERSONNEL 7 - EXTRICATION BY POLICE 8 - EXTRICATION BY SELF 9 - UNKNOWN EJECTION OR EXTRICATION	<b>83. ROAD SURFACE CONDITIONS</b> 1 - DRY 2 - WET 3 - MUDDY 4 - SNOW COVERED 5 - ICE COVERED 6 - PLOWED SNOW 7 - SALTED & CINDERED 8 - ICE PATCHES
	<b>80. INJURY SEVERITY - BLOCK H</b> 0 - NO INJURY K 1 - DEATH A 2 - MAJOR INJURY BAC 3 - MODERATE INJURY <i>See box 80</i> BAC 4 - MINOR INJURY <i>See box 80</i> 9 - UNKNOWN	<b>80. INJURY TRANSPORTATION</b> - BLOCK M 0 - NOT APPLICABLE 1 - AMBULANCE (CONT'D ABOVE)	<b>91. PROBABLE USE</b> (ALCOHOL OR DRUGS) 0 - NONE 1 - ALCOHOL 2 - CONTROLLED SUBSTANCES 3 - OTHER DRUGS 4 - BOTH ALCOHOL AND DRUGS 9 - UNKNOWN
			<b>92. TYPE TEST</b> 0 - NOT APPLICABLE NO TEST GIVEN 1 - BLOOD 2 - BREATH 3 - URINE 4 - TEST REFUSED 8 - OTHER 9 - UNKNOWN
			<b>93. RESULTS (ALCOHOL TEST)</b>  CODE ACTUAL TEST RESULT E.G. 197 GRAMS - 0.20% (MOVE 3 DECIMAL PLACES AND ROUND)



**ATTACHMENT D**

**CRASHPC Output  
(Damage and Trajectory Algorithm)**



# SCENE INFORMATION

	VEHICLE #1	VEHICLE #2
IMPACT X-POSITION	2.6 M. ( 8.5 FT.)	6.9 M. ( 22.8 FT.)
IMPACT Y-POSITION	5.5 M. ( 18.0 FT.)	4.9 M. ( 16.0 FT.)
IMPACT HEADING ANGLE	5 DEGREES	-179 DEGREES
REST X-POSITION	1.0 M. ( 3.4 FT.)	3.3 M. ( 10.9 FT.)
REST Y-POSITION	8.4 M. ( 27.7 FT.)	2.8 M. ( 9.3 FT.)
REST HEADING ANGLE	-53 DEGREES	76 DEGREES
SIDE-SLIP ANGLE	0 DEGREES	0 DEGREES
DIRECTION OF ROTATION	CCW	CCW
AMOUNT OF ROTATION	<360	<360

# COLLISION AND SEPARATION

	VEHICLE #1	VEHICLE #2
COLLISION		
IMPACT X-POSITION	2.6 M. ( 8.5 FT.)	6.9 M. ( 22.8 FT.)
IMPACT Y-POSITION	5.5 M. ( 18.0 FT.)	4.9 M. ( 16.0 FT.)
IMPACT HEADING ANGLE	5 DEGREES	-179 DEGREES
SEPARATION (USING SPINOUT)		
US	-8 KPH ( -5 MPH)	17 KPH ( 11 MPH)
VS	18 KPH ( 11 MPH)	9 KPH ( 6 MPH)
PSISD	-82 DEG/SEC	-141 DEG/SEC

	VEHICLE #1	VEHICLE #2
CG TO FRONT AXLE	118 CM. ( 46 IN.)	130 CM. ( 51 IN.)
CG TO REAR AXLE	127 CM. ( 50 IN.)	141 CM. ( 56 IN.)
TRACK	139 CM. ( 55 IN.)	150 CM. ( 59 IN.)
CG TO FRONT OF VEH	212 CM. ( 83 IN.)	228 CM. ( 90 IN.)
CG TO REAR OF VEH	-233 CM. ( -92 IN.)	-270 CM. ( -106 IN.)
CG TO SIDE OF VEH	85 CM. ( 34 IN.)	92 CM. ( 36 IN.)
MOMENT OF INERTIA	9192 KGS ( 20264 LBS)	11016 KGS ( 24286 LBS)
VEHICLE MASS	3 KGS ( 7 LBS)	3 KGS ( 7 LBS)
ROLLING RESISTANCE		
LEFT FRONT WHEEL	1.00	1.00
RIGHT FRONT WHEEL	.50	.50
LEFT REAR WHEEL	.15	.15
RIGHT REAR WHEEL	.15	.15

COEFFICIENT OF FRICTION = .75

PRESS ANY KEY TO CONTINUE



	SPEED CHANGE (DAMAGE)	IMPACT SPEED (DAMAGE AND SPINOUT)
VEHICLE #1		
TOTAL	33 KPH ( 21 MPH)	26 KPH ( 16 MPH)
LONGITUDINAL	-33 KPH ( -21 MPH)	26 KPH ( 16 MPH)
LATITUDINAL	0 KPH ( 0 MPH)	0 KPH ( 0 MPH)
PDOF ANGLE	1 DEGREES	
ENERGY DISSIPATED =	48972 JOULES ( 36115 FT-LB)	

VEHICLE #2		
TOTAL	31 KPH ( 19 MPH)	48 KPH ( 30 MPH)
LONGITUDINAL	-31 KPH ( -19 MPH)	48 KPH ( 30 MPH)
LATITUDINAL	-2 KPH ( -2 MPH)	0 KPH ( 0 MPH)
PDOF ANGLE	5 DEGREES	
ENERGY DISSIPATED =	70582 JOULES ( 52052 FT-LB)	

PRESS ANY KEY TO CONTINUE

## DAMAGE DATA

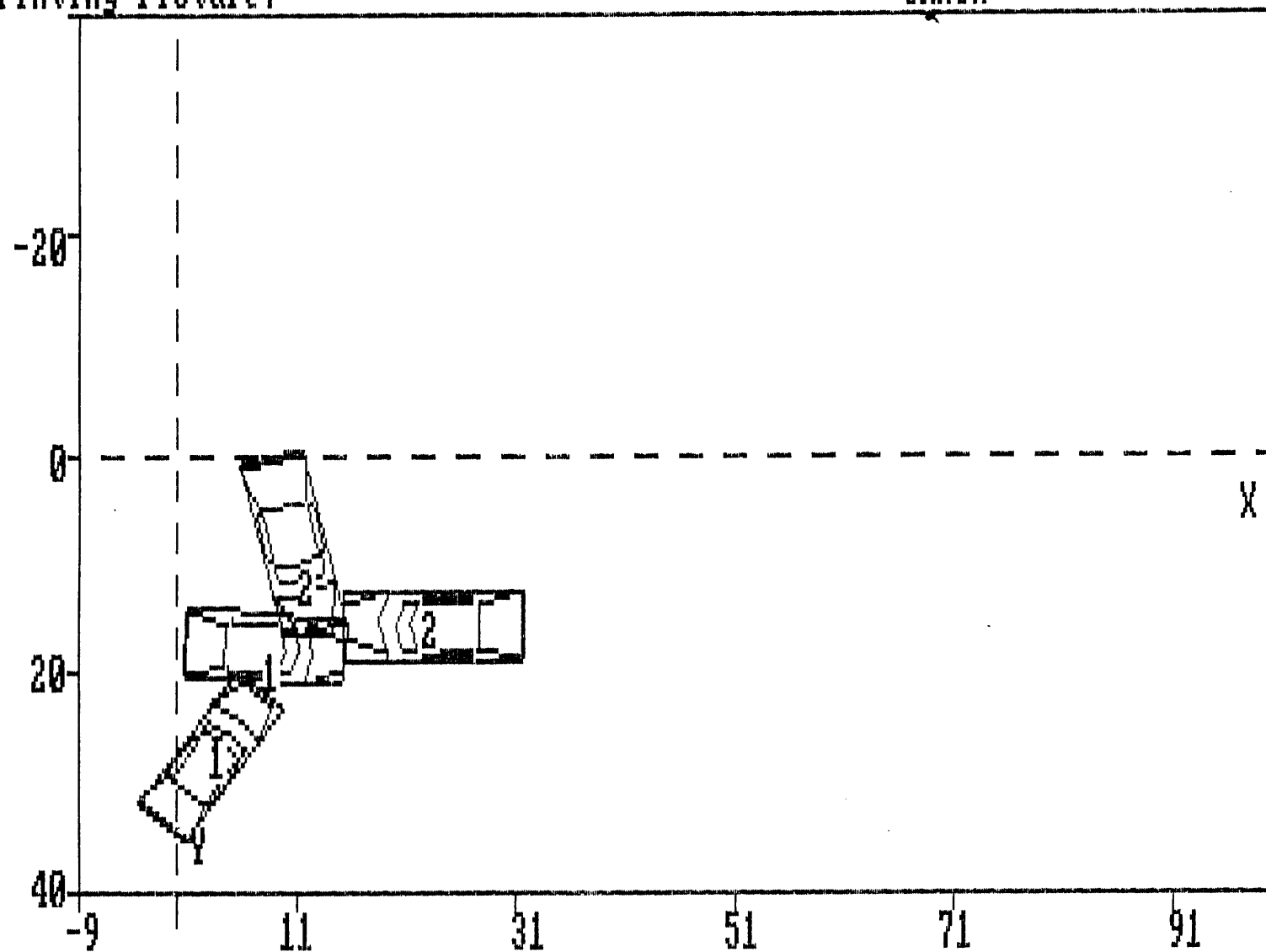
	VEHICLE #1	VEHICLE #2
SIZE CATEGORY	2	3
STIFFNESS CATEGORY	9	3
VEHICLE WEIGHT	1198 KGS ( 2641 LBS)	1275 KGS ( 2810 LBS)
CDC	12FYEW4	12FYEW4
PDOF ANGLE	1 DEGREES	5 DEGREES
CRUSH LENGTH	140 CM. ( 55 IN.)	150 CM. ( 59 IN.)
C1	74 CM. ( 29 IN.)	68 CM. ( 27 IN.)
C2	39 CM. ( 15 IN.)	54 CM. ( 21 IN.)
C3	22 CM. ( 9 IN.)	36 CM. ( 14 IN.)
C4	11 CM. ( 5 IN.)	20 CM. ( 8 IN.)
C5	4 CM. ( 2 IN.)	5 CM. ( 2 IN.)
C6	0 CM. ( 0 IN.)	0 CM. ( 0 IN.)
D	-25 CM. ( -10 IN.)	-21 CM. ( -8 IN.)
D'	-59 CM. ( -23 IN.)	-52 CM. ( -21 IN.)

(\* INDICATES DEFAULT VALUE)  
PRESS ANY KEY TO CONTINUE



Printing Picture:

CRASH

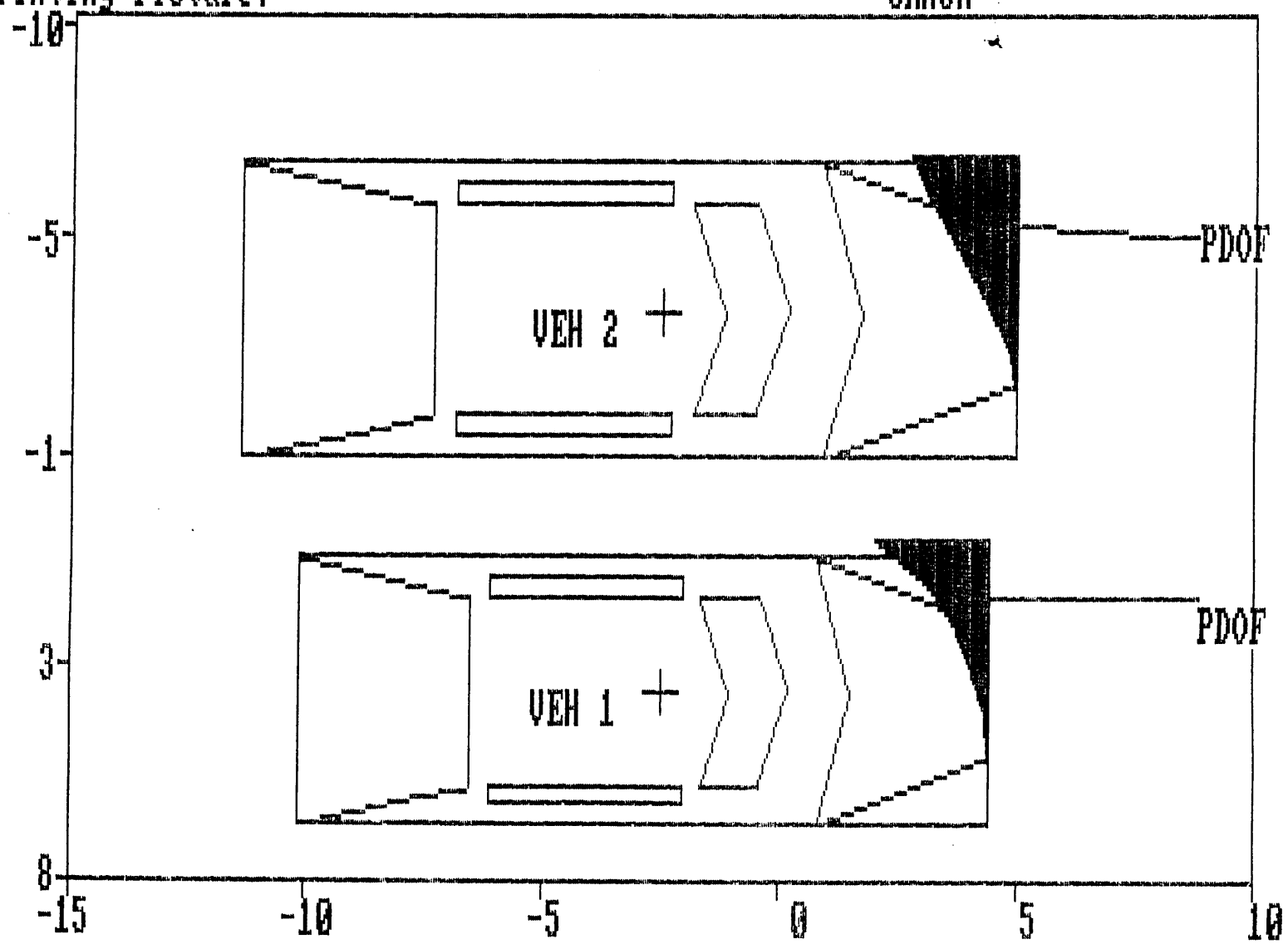


SCENE DESCRIPTION



Printing Picture:

CRASH



DAMAGE DESCRIPTION



**ATTACHMENT F**

**NASS Occupant Forms  
(1995 Ford Escort)**





## OCCUPANT ASSESSMENT FORM

1. Primary Sampling Unit Number

2. Case Number - ~~Stratum~~

3. Vehicle Number

4. Occupant Number

## OCCUPANT'S CHARACTERISTICS

5. Occupant's Age

Code actual age at time of accident.

(00) Less than one year old (specify by month):

(97) 97 years and older

(99) Unknown

6. Occupant's Sex

(1) Male

(2) Female-not reported pregnant

(3) Female-pregnant-1st trimester(1st-3rd month)

(4) Female-pregnant-2nd trimester(4th-6th month)

(5) Female-pregnant-3rd trimester(7th-9th month)

(6) Female-pregnant-term unknown

(9) Unknown

7. Occupant's Height

Code actual height to the nearest  
centimeter.

(999) Unknown

67 inches X 2.54 = 170 centimeters

8. Occupant's Weight

Code actual weight to the nearest  
kilogram.

(999)Unknown

155 pounds X .4536 = 070 kilograms

9. Occupant's Role

(1) Driver

(2) Passenger

(9) Unknown

## OCCUPANT'S SEATING

10. Occupant's Seat Position

*Front Seat*

(11) Left side

(12) Middle

(13) Right side

(14) Other (specify):

(15) On or in the lap of another occupant

*Second Seat*

(21) Left side

(22) Middle

(23) Right side

(24) Other (specify):

(25) On or in the lap of another occupant

*Third Seat*

(31) Left side

(32) Middle

(33) Right side

(34) Other (specify):

(35) On or in the lap of another occupant

*Fourth Seat*

(41) Left side

(42) Middle

(43) Right side

(44) Other (specify):

(45) On or in the lap of another occupant

(97) In or on unenclosed area

(98) Other seat (specify):

(99) Unknown

11. Occupant's Posture

(0) Normal posture

*Abnormal posture*

(1) Kneeling or standing on seat

(2) Lying on or across seat

(3) Kneeling, standing or sitting in front of seat

(4) Sitting sideways or turned to talk with another  
occupant or to look out a rear window

(5) Sitting on a console

(6) Lying back in a reclined seat position

(7) Bracing with feet or hands on a surface in front  
of seat

(8) Other abnormal posture (specify):

(9) Unknown



## EJECTION/ENTRAPMENT

12. Ejection 0

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

13. Ejection Area 0

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

14. Ejection Medium 0

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

16. Entrapment 0

- (0) Not entrapped/exit not inhibited
- (1) Entrapped/pinned - mechanically restrained
- (2) Could not exit vehicle due to jammed doors, fire, etc.  
(specify): \_\_\_\_\_
- (9) Unknown

17. Occupant Mobility 2

- (0) Occupant fatal before removed from vehicle
- (1) Removed from vehicle while unconscious or disoriented
- (2) Removed from vehicle due to injuries
- (3) Exited vehicle with some assistance
- (4) Exited vehicle under own power
- (5) Occupant fully ejected
- (9) Unknown



**BELT SYSTEM FUNCTION**18. Manual (Active) Belt System Availability 3

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify): \_\_\_\_\_

(9) Unknown

19. Manual (Active) Belt System Use 00

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify): \_\_\_\_\_

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used—type unknown
- (08) Other belt used (specify): \_\_\_\_\_

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat—type unknown
- (18) Other belt used with child safety seat (specify): \_\_\_\_\_
- (99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 0

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

(8) Other improper use of manual belt system (specify): \_\_\_\_\_

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 0

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_

- (6) Broken retractor
- (7) Combination of above (specify): \_\_\_\_\_

(8) Other manual belt failure (specify): \_\_\_\_\_

(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 1

- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

*Adjustable shoulder Belt Upper Anchorage*

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/Function 1

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

24. Automatic (Passive) Belt System Use 1

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): \_\_\_\_\_
- (3) Automatic belt use unknown
- (9) Unknown

25. Automatic (Passive) Belt System Type 2

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

26. Proper Use of Automatic (Passive) Belt System 1

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

(8) Other improper use of automatic belt system (specify): \_\_\_\_\_

(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 1

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_

(6) Broken retractor

(7) Combination of above (specify): \_\_\_\_\_

(8) Other automatic belt failure (specify): \_\_\_\_\_

(9) Unknown



## POLICE REPORTED RESTRAINT USE

## AIR BAG SYSTEM FUNCTION

28. Police Reported Belt Use 4

- (0) None used  
 (1) Police did not indicate belt use  
 (2) Shoulder belt  
 (3) Lap belt  
 (4) Lap and shoulder belt  
 (5) Belt used, type not specified  
 (6) Child safety seat  
 (7) Automatic belt  
 (8) Other type belt, (specify):  
 (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 2

- (0) No air bag available  
 (1) Police did not indicate air bag availability/function  
 (2) Deployed  
 (3) Not deployed  
 (4) Unknown if deployed  
 (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

- [ ] Not equipped/not available/destroyed or rendered inoperative  
☒ Vehicle inspection  
 [ ] Official injury data  
 [ ] Driver/occupant interview  
 [ ] Other (specify):  
 [ ] Unknown if belt used

30. Frontal Air Bag System Availability/Function (This Occupant Position) 1

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):

- (3) Air bag not reinstalled  
 (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 1

- (0) Not equipped/not available  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):

- (3) Air bag not reinstalled  
 (9) Unknown

*Specify type of "other" air bag present:*

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0

- (0) Not equipped with an "other" air bag  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 1

- (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):

- (9) Unknown



## FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 1

(0) Not equipped/not available

(1) No previous accidents

Yes

(2) Previous accident(s) without deployment(s)

(3) One previous accident with deployment

(4) More than one previous accident with at least one deployment

(8) Previous accidents, unknown deployment status

(9) Unknown

36. Type of Air Bag 1

(0) Not equipped/not available

(1) Original manufacturer installed system

(2) Retrofitted air bag

(3) Replacement air bag

(8) Unknown type of air bag

(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1

(0) Not equipped/not available

(1) No prior maintenance

(2) Yes, prior maintenance (specify):

(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 03

(00) Not equipped/not available

Code the accident event sequence number that initiated the air bag deployment

(96) Deployed, unknown event

(97) Not deployed

(98) Unknown if deployed

(99) Unknown

39. CDC For Air Bag Deployment Impact 1

(0) Not equipped/not available

(1) Highest delta V

(2) Second highest delta V

(3) Other non-coded delta V (specify):

(6) Deployed, unknown event

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

40. Longitudinal Component of

Delta V For Air Bag

Deployment Impact

(\_000) Not equipped/not available

Code the value of the delta V for the impact that initiated the air bag deployment

(\_996) Deployment, unknown longitudinal Delta V

(\_997) Not deployed

(\_998) Unknown if deployed

(\_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 2

(0) Not equipped/not available

(1) No

(2) Yes

(3) Deployed, unknown if flap(s) opened at designated tear points

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 1

(0) Not equipped/not available

(1) No

(2) Yes (specify):

(3) Deployed, unknown if air bag module cover flap(s) damaged

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

43. Was There Damage To The Air Bag? 01

(00) Not equipped/not available

(01) Not damaged

Yes - Air Bag Damage

(02) Ruptured

(03) Cut

(04) Torn

(05) Holed

(06) Burned

(07) Abraded

(88) Other damage (specify):

(95) Damaged, details unknown

(96) Deployed, unknown if damaged

(97) Not deployed

(98) Unknown if deployed

(99) Unknown



**FIRST SEAT FRONTAL AIR BAG SYSTEM  
EVALUATION** *continued***HEAD RESTRAINT AND SEAT EVALUATION**

44. Source of Air Bag Damage 01  
 (00) Not equipped/not available  
 (01) Not damaged  
 (02) Object worn by occupant, (specify):  
 (03) Object carried by occupant, (specify):  
 (04) Adaptive/assistive controls, (specify):  
 (05) Fire in vehicle  
 (06) Thermal burns  
 (07) Rescue or emergency efforts  
 (88) Other damage source (specify):  
 (95) Damaged, unknown source  
 (96) Deployed, unknown if damaged  
 (97) Not deployed  
 (98) Unknown if deployed  
 (99) Unknown
45. Was The Air Bag Tethered? 2  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of tether straps):  
4  
 (3) Deployed, unknown if tethered  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
46. Did The Air Bag Have Vent Ports? 2  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of vent ports):  
2  
 (3) Deployed, unknown if vent ports present  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):  
 (3) Deployed, unknown if other occupant contact to air bag  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
48. Was This Occupant Wearing Eye-wear? 4  
 (0) Not equipped/not available  
 (1) No  
 (2) Eyeglasses/sunglasses  
 (3) Contact lenses  
 (4) Deployed, unknown if eyewear worn  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown

49. Head Restraint Type/Damage by Occupant at This Occupant Position 3  
 (0) No head restraints  
 (1) Integral—no damage  
 (2) Integral—damaged during accident  
 (3) Adjustable—no damage  
 (4) Adjustable—damaged during accident  
 (5) Add-on—no damage  
 (6) Add-on—damaged during accident  
 (8) Other (specify):  
 (9) Unknown
50. Seat Type (this Occupant Position) 02  
 (00) Occupant not seated or no seat  
 (01) Bucket  
 (02) Bucket with folding back  
 (03) Bench  
 (04) Bench with separate back cushions  
 (05) Bench with folding back(s)  
 (06) Split bench with separate back cushions  
 (07) Split bench with folding back(s)  
 (08) Pedestal (i.e., column supported)  
 (09) Box mounted seat (i.e., van type)  
 (10) Other seat type (specify):  
 (99) Unknown
51. Seat Orientation (this Occupant Position) 1  
 (0) Occupant not seated or no seat  
 (1) Forward facing seat  
 (2) Rear facing seat  
 (3) Side facing seat (inward)  
 (4) Side facing seat (outward)  
 (8) Other (specify):  
 (9) Unknown
52. Seat Track Adjusted Position Prior To Impact 4  
 (0) Occupant not seated or no seat  
 (1) Non-adjustable seat track  
*Adjustable Seat Track*  
 (2) Seat at forward most track position  
 (3) Seat between forward most and middle track positions  
 (4) Seat at middle track position  
 (5) Seat between middle and rear most track positions  
 (6) Seat at rear most track position  
 (9) Unknown



HEAD RESTRAINT AND SEAT EVALUATION *continued*53. Seat Back Incline Prior and Post Impact 2 2

(00) Occupant not seated or no seat

(01) Not adjustable

*Upright prior to impact*

(11) Moved to completely rearward position

(12) Moved to rearward midrange position

(13) Moved to slightly rearward position

(14) Retained pre-impact position

(15) Moved to slightly forward position

(16) Moved to forward midrange position

(17) Moved to completely forward position

*Slightly reclined prior to impact*

(21) Moved to completely rearward position

(22) Moved to rearward midrange position

(23) Retained pre-impact position

(24) Moved to upright position

(25) Moved to slightly forward position

(26) Moved to forward midrange position

(27) Moved to completely forward position

*Completely reclined prior to impact*

(31) Retained pre-impact position

(32) Moved to rearward midrange position

(33) Moved to slightly rearward position

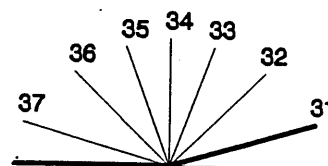
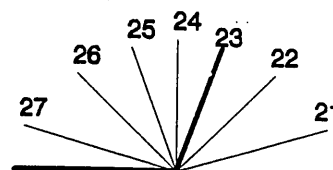
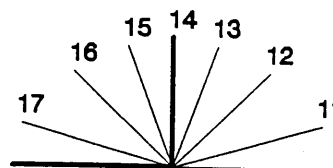
(34) Moved to upright position

(35) Moved to slightly forward position

(36) Moved to forward midrange position

(37) Moved to completely forward position

(99) Unknown

54. Seat Performance (this Occupant Position) 1

(0) Occupant not seated or no seat

(1) No seat performance failure(s)

(2) Seat adjusters failed

(3) Seat back folding locks or "seat back" failed (specify): \_\_\_\_\_

(4) Seat track/anchors failed

(5) Deformed by impact of occupant

(6) Deformed by passenger compartment intrusion, (specify): \_\_\_\_\_

(7) Combination of above (specify): \_\_\_\_\_

(8) Other (specify): \_\_\_\_\_

(9) Unknown



## CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 000  
 (000) No child safety seat  
 Applicable codes are found in your NASS CDS  
 Data Collection, Coding and Editing  
 (950) Built-in child safety seat  
 (997) Other make/model (specify):

(998) Unknown make/model  
 (999) Unknown if child safety seat used

56. Type of Child Safety Seat 0  
 (0) No child safety seat  
 (1) Infant seat  
 (2) Toddler seat  
 (3) Convertible seat  
 (4) Booster seat - with shield  
 (5) Booster seat - without shield  
 (7) Other type child safety seat (specify):  
 (8) Unknown child safety seat type  
 (9) Unknown if child safety seat used

57. Child Safety Seat Orientation 00  
 (00) No child safety seat

*Designed for Rear Facing for This Age/Weight*

(01) Rear facing  
 (02) Forward facing  
 (08) Other orientation (specify):

(09) Unknown orientation

*Designed For Forward Facing for This Age/Weight*

(11) Rear facing  
 (12) Forward facing  
 (18) Other orientation (specify):

(19) Unknown orientation

*Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight*

(21) Rear facing  
 (22) Forward facing  
 (28) Other orientation (specify):

(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 00

59. Child Safety Seat Shield Usage 00

60. Child Safety Seat Tether Usage 00

Note: Options below applicable to  
 Variables OA58-OA60.

(00) No child safety seat

*Not Designed With Harness/Shield/Tether*

(01) After market harness/shield/tether  
 added, not used  
 (02) After market harness/shield/tether used  
 (03) Child safety seat used, but no after market  
 harness/shield/tether added  
 (09) Unknown if harness/shield/tether  
 added or used

*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used  
 (12) Harness/shield/tether used  
 (19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

(21) Harness/shield/tether not used  
 (22) Harness/shield/tether used  
 (29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used



**INJURY CONSEQUENCES**61. Injury Severity (Police Rating) 3

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

62. Treatment - Mortality 3

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):  
\_\_\_\_\_

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (7) Treatment - other (specify):  
\_\_\_\_\_
- (8) Transported to a medical facility-unknown if treated
- (9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):  
\_\_\_\_\_

(9) Unknown

64. Hospital Stay 03

(00) Not Hospitalized

Code the number of days (up through 60) that the occupant stayed in hospital.

- (61) 61 days or more
- (99) Unknown

65. Working Days Lost 97

Code the number of days (up through 60) that the occupant lost from work due to the accident

- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP WORK HERE****VARIABLES 66-74****TO BE CODED BY THE ZONE CENTER**



**TO BE CODED BY THE ZONE CENTER****INJURY CONSEQUENCES**

66. Time to Death 00  
 \_\_\_\_\_ Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)  
 (00) Not fatal  
 (96) Fatal - ruled disease  
 (99) Unknown
67. 1st Medically Reported Cause of Death 00
68. 2nd Medically Reported Cause of Death 00
69. 3rd Medically Reported Cause of Death 00  
 \_\_\_\_\_ Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death  
 (00) Not fatal or no additional causes  
 (96) Mode of death given but specific injuries are not linked to cause of death. (specify): \_\_\_\_\_  
 (97) Other result (includes fatal ruled disease) (specify): \_\_\_\_\_  
 (99) Unknown
70. Number of Recorded Injuries for This Occupant 08  
 \_\_\_\_\_ Code the actual number of injuries recorded for this occupant.  
 (00) No recorded injuries  
 (97) Injured, details unknown  
 (99) Unknown if injured

**TRAUMA DATA**

71. Glasgow Coma Scale (GCS) Score 97  
 (at Medical Facility)  
 (00) Not injured  
 (01) Injured - not treated at medical facility  
 (02) No GCS Score at medical facility  
 (03-15) Code the actual value of the initial GCS Score recorded at medical facility.  
 (97) Injured, details unknown  
 (99) Unknown if injured
72. Was the Occupant Given Blood? 9  
 (1) No - blood not given  
 (2) Yes - blood given (specify units): \_\_\_\_\_  
 (9) Unknown if blood given
73. Arterial Blood Gases (ABG) -  $\text{HCO}_3$  97  
 (00) Not injured  
 (01) Injured, ABGs not measured or reported  
 (02-50) Code the actual value of the  $\text{HCO}_3$   
 (96) ABGs reported,  $\text{HCO}_3$  unknown  
 (97) Injured, details unknown  
 (99) Unknown if injured

**BELT USE DETERMINATION**

74. Primary Source of Belt Use Determination 1  
 (0) Not equipped/not available/destroyed or rendered inoperative  
 (1) Vehicle inspection  
 (2) Official injury data  
 (3) Driver/occupant interview  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown if belt used





# OCCUPANT INJURY FORM

1. Primary Sampling Unit Number	3. Vehicle Number
2. Case Number —Stratum	4. Occupant Number
95-16	01

## INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

Source of Injury Data	Body Region	A.I.S. - 90				Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number		
		Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity						
1st	5. 7	6. 6	7. 5	8. 02	9. 16	10. 2	11. 6	12. 697	13. 3	14. 7	15.
2nd	16. 7	17. 6	18. 5	19. 06	20. 16	21. 2	22. 8	23. 697	24. 3	25. 7	26.
3rd	27. 7	28. 8	29. 5	30. 26	31. 00	32. 2	33. 1	34. 014	35. 1	36. 2	37.
4th	38. 7	39. 8	40. 5	41. 24	42. 00	43. 2	44. 2	45. 014	46. 1	47. 1	48.
5th	49. 7	50. 7	51. 5	52. 32	53. 00	54. 2	55. 1	56. 175/170	57. 2	58. 1	59. 00
6th	60. 7	61. 7	62. 5	63. 28	64. 00	65. 2	66. 1	67. 175/170	68. 2	69. 1	70. 00
7th	71. 7	72. 8	73. 9	74. 06	75. 00	76. 1	77. 1	78. 014	79. 1	80. 1	81.
8th	82. 7	83. 7	84. 9	85. 06	86. 00	87. 1	88. 2	89. 152	90. 1	91. 1	92. 00
9th	93.	94.	95.	96.	97.	98.	99.	100.	101.	102.	103.
10th	104.	105.	106.	107.	108.	109.	110.	111.	112.	113.	114.



# INJURY SOURCES

## FRONT

- (001) Windshield
- (002) Mirror
- (003) Sunvisor
- (004) Steering wheel rim
- (005) Steering wheel hub/spoke
- (006) Steering wheel (combination of codes 004 and 005)
- (007) Steering column, transmission selector lever, other attachment
- (008) Cellular telephone or CB radio
- (009) Add on equipment (e.g., tape deck, air conditioner)
- (010) Left instrument panel and below
- (011) Center instrument panel and below
- (012) Right instrument panel and below
- (013) Glove compartment door
- (014) Knee bolster
- (015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (017) Windshield reinforced by exterior object (specify):
- (019) Other front object (specify):

## LEFT SIDE

- (051) Left side interior surface, excluding hardware or armrests
- (052) Left side hardware or armrest
- (053) Left A (A1/A2)-pillar
- (054) Left B-pillar
- (055) Other left pillar (specify):
- (056) Left side window glass
- (057) Left side window frame
- (058) Left side window sill
- (059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (060) Other left side object (specify):

## RIGHT SIDE

- (101) Right side interior surface, excluding hardware or armrests

- (102) Right side hardware or armrest
- (103) Right A (A1/A2)-pillar
- (104) Right B-pillar
- (105) Other right pillar (specify):
- (106) Right side window glass
- (107) Right side window frame
- (108) Right side window sill
- (109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (110) Other right side object (specify):

## INTERIOR

- (151) Seat, back support
- (152) Belt restraint webbing/buckle
- (153) Belt restraint B-pillar or door frame attachment point
- (154) Other restraint system component (specify):
- (155) Head restraint system
- (160) Other occupants (specify):
- (161) Interior loose objects
- (162) Child safety seat (specify):
- (163) Other interior object (specify):

## AIR BAG

- (170) Air bag-driver side
- (171) Air bag-driver side and eyewear
- (172) Air bag-driver side and jewelry
- (173) Air bag-driver side and object held
- (174) Air bag-driver side and object in mouth
- (175) Air bag compartment cover-driver side
- (176) Air bag compartment cover-driver side and eyewear
- (177) Air bag compartment cover-driver side and jewelry
- (178) Air bag compartment cover-driver side and object held
- (179) Air bag compartment cover-driver side and object in mouth
- (180) Air bag-passenger side
- (181) Air bag-passenger side and eyewear
- (182) Air bag-passenger side and jewelry

- (183) Air bag-passenger side and object held
- (184) Air bag-passenger side and object in mouth
- (185) Air bag compartment cover-passenger side
- (186) Air bag compartment cover-passenger side and eyewear
- (187) Air bag compartment cover-passenger side and jewelry
- (188) Air bag compartment cover-passenger side and object held
- (189) Air bag compartment cover-passenger side and object in mouth
- (190) Other air bag (specify):
- (195) Other air bag compartment cover (specify):

## ROOF

- (201) Front header
- (202) Rear header
- (203) Roof left side rail
- (204) Roof right side rail
- (205) Roof or convertible top

## FLOOR

- (251) Floor (including toe pan)
- (252) Floor or console mounted transmission lever, including console
- (253) Parking brake handle
- (254) Foot controls including parking brake

## REAR

- (301) Backlight (rear window)
- (302) Backlight storage rack, door, etc.
- (303) Other rear object (specify):

## ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT

- (401) Hand controls for braking/acceleration
- (402) Steering control devices (attached to OEM steering wheel)
- (403) Steering knob attached to steering wheel
- (405) Replacement steering wheel (i.e., reduced diameter)
- (406) Joy stick steering controls
- (407) Wheelchair tie-downs
- (408) Modification to seat belts, (specify):
- (409) Additional or relocated switches, (specify):
- (410) Raised roof

- (411) Wall mounted head rest (used behind wheel chair)
- (412) Other adaptive device (specify):

## EXTERIOR of OCCUPANT'S VEHICLE

- (451) Hood
- (452) Outside hardware (e.g., outside mirror, antenna)
- (453) Other exterior surface or tires (specify):
- (454) Unknown exterior objects

## EXTERIOR OF OTHER MOTOR VEHICLE

- (501) Front bumper
- (502) Hood edge
- (503) Other front of vehicle (specify):
- (504) Hood
- (505) Hood ornament
- (506) Windshield, roof rail, A-pillar
- (507) Side surface
- (508) Side mirrors
- (509) Other side protrusions (specify):
- (510) Rear surface
- (511) Undercarriage
- (512) Tires and wheels
- (513) Other exterior of other motor vehicle (specify):
- (514) Unknown exterior of other motor vehicle

## OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

- (551) Ground
- (598) Other vehicle or object (specify):
- (599) Unknown vehicle or object

## NONCONTACT INJURY

- (601) Fire in vehicle
- (602) Flying glass
- (603) Other noncontact injury source (specify):
- (604) Air bag exhaust gases
- (697) Injured, unknown source



## OCCUPANT INJURY CLASSIFICATION

Body Region	Specific Anatomic Structure	Level of Injury	Aspect
(1) Head		Specific injuries are assigned consecutive two-digit numbers beginning with 02.	(1) Right
(2) Face			(2) Left
(3) Neck	<u>Vessels, Nerves, Organs.</u>	To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.	(3) Bilateral
(4) Thorax	<u>Bones, Joints</u> are assigned consecutive two digit numbers beginning with 02.		(4) Central
(5) Abdomen		The exceptions to this rule apply to:	(5) Anterior
(6) Spine			(6) Posterior
(7) Upper Extremity			(7) Superior
(8) Lower Extremity			(8) Inferior
(9) Unspecified			(9) Unknown
			(0) Whole region
Type of Anatomic Structure	Whole Area	Abbreviated Injury Scale	
(1) Whole Area	(02) Skin - Abrasion	(1) Minor Injury	
(2) Vessels	(04) Skin - Contusion	(2) Moderate Injury	
(3) Nerves	(06) Skin - Laceration	(3) Serious Injury	
(4) Organs (includes Muscles/ligaments)	(08) Skin - Avulsion	(4) Severe Injury	
(5) Skeletal (includes joints)	(10) Amputation	(5) Critical Injury	
(6) Head - LOC	(20) Burn	(6) Maximum (untreatable)	
(9) Skin	(30) Crush	(7) Injured, unknown severity	
	(40) Degloving		
	(50) Injury - NFS		
	(90) Trauma, other than mechanical		
	<u>Head - LOC</u>		
	(02) Length of LOC		
	(04) Level		
	(06) of		
	(08) Consciousness		
	(10) Concussion		
	<u>Spine</u>		
	(02) Cervical		
	(04) Thoracic		
	(06) Lumbar		

SOURCE OF INJURY DATA	INJURY SOURCE CONFIDENCE LEVEL	DIRECT/INDIRECT INJURY
<u>OFFICIAL RECORDS</u> (1) Autopsy records with or without hospital/medical records (2) Hospital/medical records other than emergency room (e.g., discharge summary) (3) Emergency room records only (including associated X-rays or other lab reports) (4) Private physician, walk-in or emergency clinic  <u>UNOFFICIAL RECORDS</u> (5) Lay coroner report (6) E.M.S. personnel (7) Interviewee (8) Other source (specify): _____ (9) Police	(1) Certain (2) Probable (3) Possible (9) Unknown	(1) Direct contact injury (2) Indirect contact injury (3) Noncontact injury (7) Injured, unknown source



Fracture of C<sub>6</sub> (not further specified), AIS-2, unknown source

Lacerated left anterior shoulder, AIS-1, automatic shoulder belt webbing

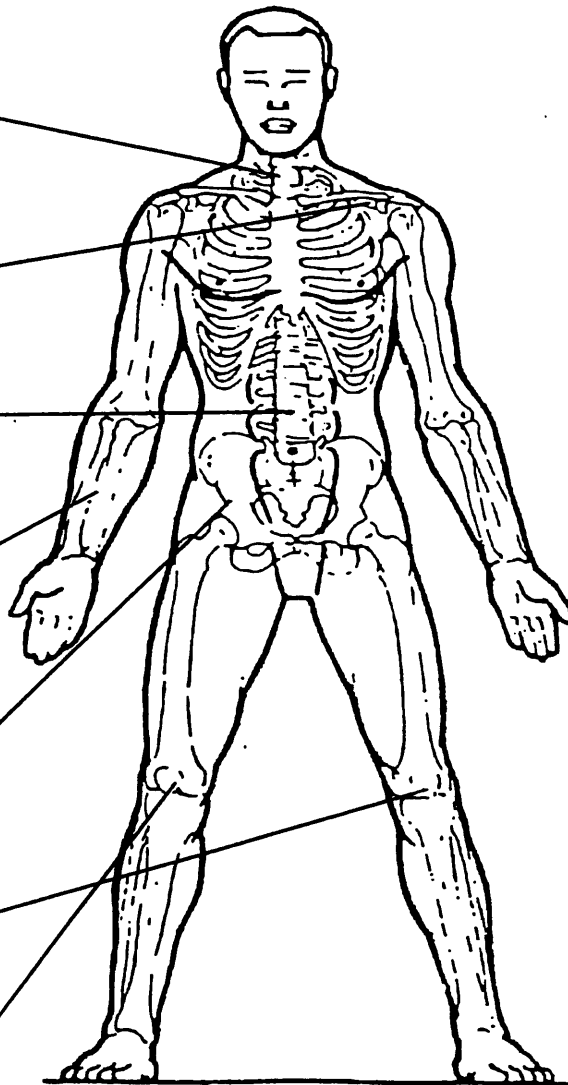
Lumbar spine fracture (not further specified), AIS-2, unknown source

Fractured right radius and ulna, AIS-2, deploying air bag and/or module cover flaps

Right pelvic fracture (not further specified), AIS-2, induced fracture from knee loading into bolster

Fracture of the left patella, AIS-2, intruding knee bolster

Lacerated right knee, AIS-1, intruding knee bolster







# OCCUPANT ASSESSMENT FORM

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. ~~Primary Sampling Unit Number~~

2. Case Number - ~~Stratum~~

3. Vehicle Number

4. Occupant Number

## OCCUPANT'S CHARACTERISTICS

5. Occupant's Age

Code actual age at time of accident.

(00) Less than one year old (specify by month):

22 DAYS

(97) 97 years and older

(99) Unknown

6. Occupant's Sex

(1) Male

(2) Female-not reported pregnant

(3) Female-pregnant-1st trimester(1st-3rd month)

(4) Female-pregnant-2nd trimester(4th-6th month)

(5) Female-pregnant-3rd trimester(7th-9th month)

(6) Female-pregnant-term unknown

(9) Unknown

7. Occupant's Height

Code actual height to the nearest  
centimeter.

(999) Unknown

\_\_\_\_ inches X 2.54 = \_\_\_\_ centimeters

8. Occupant's Weight

Code actual weight to the nearest  
kilogram.

(999)Unknown

\_\_\_\_ pounds X .4536 = \_\_\_\_ kilograms

9. Occupant's Role

(1) Driver

(2) Passenger

(9) Unknown

## OCCUPANT'S SEATING

10. Occupant's Seat Position

*Front Seat*

(11) Left side

(12) Middle

(13) Right side

(14) Other (specify):

(15) On or in the lap of another occupant

*Second Seat*

(21) Left side

(22) Middle

(23) Right side

(24) Other (specify):

(25) On or in the lap of another occupant

*Third Seat*

(31) Left side

(32) Middle

(33) Right side

(34) Other (specify):

(35) On or in the lap of another occupant

*Fourth Seat*

(41) Left side

(42) Middle

(43) Right side

(44) Other (specify):

(45) On or in the lap of another occupant

(97) In or on unenclosed area

(98) Other seat (specify):

(99) Unknown

11. Occupant's Posture

(0) Normal posture

*Abnormal posture*

(1) Kneeling or standing on seat

\* (2) Lying on or across seat

(3) Kneeling, standing or sitting in front of seat

(4) Sitting sideways or turned to talk with another  
occupant or to look out a rear window

(5) Sitting on a console

(6) Lying back in a reclined seat position

(7) Bracing with feet or hands on a surface in front  
of seat

(8) Other abnormal posture (specify):

(9) Unknown

\* *Lying in child restraint*



**EJECTION/ENTRAPMENT****12. Ejection**0

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

**13. Ejection Area**0

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

**14. Ejection Medium**0

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

**15. Medium Status (Immediately Prior To Impact)**0

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

**16. Entrapment**0

- (0) Not entrapped/exit not inhibited
- (1) Entrapped/pinned - mechanically restrained
- (2) Could not exit vehicle due to jammed doors, fire, etc.  
(specify): \_\_\_\_\_
- (9) Unknown

**17. Occupant Mobility**2

- (0) Occupant fatal before removed from vehicle
- (1) Removed from vehicle while unconscious or disoriented
- (2) Removed from vehicle due to injuries
- (3) Exited vehicle with some assistance
- (4) Exited vehicle under own power
- (5) Occupant fully ejected
- (9) Unknown



## BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 3

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify):

(9) Unknown

19. Manual (Active) Belt System Use 1 3

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify):

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used—type unknown
- (08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat—type unknown
- (18) Other belt used with child safety seat (specify):
- (99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 7

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):
- (8) ~~IMPROPER USE OF LOCKING CLIP~~ Other improper use of manual belt system (specify):

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 1

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- (6) Broken retractor
- (7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 1

- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

*Adjustable shoulder Belt Upper Anchorage*

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/Function 1

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

24. Automatic (Passive) Belt System Use 2

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): BELT RETRACTED
- (3) Automatic belt use unknown
- (9) Unknown

25. Automatic (Passive) Belt System Type 2

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of automatic belt system (specify):

(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- (6) Broken retractor
- (7) Combination of above (specify):
- (8) Other automatic belt failure (specify):

(9) Unknown



POLICE REPORTED RESTRAINT USE	AIR BAG SYSTEM FUNCTION
<p>28. Police Reported Belt Use <u>4</u></p> <p>(0) None used</p> <p>(1) Police did not indicate belt use</p> <p>(2) Shoulder belt</p> <p>(3) Lap belt</p> <p>(4) Lap and shoulder belt</p> <p>(5) Belt used, type not specified</p> <p>(6) Child safety seat</p> <p>(7) Automatic belt</p> <p>(8) Other type belt, (specify): _____</p> <p>(9) Police indicated "unknown" _____</p>	<p>30. Frontal Air Bag System Availability/Function (This Occupant Position) <u>1</u></p> <p>(0) Not equipped/not available</p> <p>(1) Air bag</p> <p><i>Non-functional</i></p> <p>(2) Air bag disconnected (specify): _____</p> <p>(3) Air bag not reinstalled _____</p> <p>(9) Unknown</p>
<p>29. Police Reported Air Bag Availability/Function <u>2</u></p> <p>(0) No air bag available</p> <p>(1) Police did not indicate air bag availability/function</p> <p>(2) Deployed</p> <p>(3) Not deployed</p> <p>(4) Unknown if deployed</p> <p>(9) Police indicated "unknown"</p>	<p>31. Frontal Air Bag System Deployment (This Occupant Position) <u>1</u></p> <p>(0) Not equipped/not available</p> <p>(1) Deployed during accident (as a result of impact)</p> <p>(2) Deployed inadvertently just prior to accident</p> <p>(3) Deployed, details unknown</p> <p>(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)</p> <p>(5) Unknown if deployed</p> <p>(7) Nondeployed</p> <p>(9) Unknown</p>
<p>Check the Primary Source Used In Determining Belt Use.</p> <p><input type="checkbox"/> Not equipped/not available/destroyed or rendered inoperative</p> <p><input checked="" type="checkbox"/> Vehicle inspection</p> <p><input type="checkbox"/> Official injury data</p> <p><input type="checkbox"/> Driver/occupant interview</p> <p><input type="checkbox"/> Other (specify): _____</p> <p><input type="checkbox"/> Unknown if belt used _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) <u>0</u></p> <p>(0) Not equipped/not available</p> <p>(1) Air bag</p> <p><i>Non-functional</i></p> <p>(2) Air bag disconnected (specify): _____</p> <p>(3) Air bag not reinstalled _____</p> <p>(9) Unknown</p> <p><i>Specify type of "other" air bag present:</i></p> <p>_____</p>
	<p>33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) <u>0</u></p> <p>(0) Not equipped with an "other" air bag</p> <p>(1) Deployed during accident (as a result of impact)</p> <p>(2) Deployed inadvertently just prior to accident</p> <p>(3) Deployed, details unknown</p> <p>(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)</p> <p>(5) Unknown if deployed</p> <p>(7) Nondeployed</p> <p>(9) Unknown</p>
	<p>34. Are There Indications of Air Bag System Failure? (This Occupant Position) <u>1</u></p> <p>(0) Not equipped/not available</p> <p>(1) No</p> <p>(2) Yes (specify): _____</p> <p>(9) Unknown _____</p>



## FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 1

(0) Not equipped/not available

(1) No previous accidents

Yes

(2) Previous accident(s) without deployment(s)

(3) One previous accident with deployment

(4) More than one previous accident with at least one deployment

(8) Previous accidents, unknown deployment status

(9) Unknown

36. Type of Air Bag 1

(0) Not equipped/not available

(1) Original manufacturer installed system

(2) Retrofitted air bag

(3) Replacement air bag

(8) Unknown type of air bag

(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1

(0) Not equipped/not available

(1) No prior maintenance

(2) Yes, prior maintenance (specify):

(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 03

(00) Not equipped/not available

Code the accident event sequence number that initiated the air bag deployment

(96) Deployed, unknown event

(97) Not deployed

(98) Unknown if deployed

(99) Unknown

39. CDC For Air Bag Deployment Impact 1

(0) Not equipped/not available

(1) Highest delta V

(2) Second highest delta V

(3) Other non-coded delta V (specify):

(6) Deployed, unknown event

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

40. Longitudinal Component of Delta V For Air Bag + 0 0 3 3

Deployment Impact

(\_000) Not equipped/not available

Code the value of the delta V for the impact that initiated the air bag deployment

(\_996) Deployment, unknown longitudinal Delta V

(\_997) Not deployed

(\_998) Unknown if deployed

(\_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 2

(0) Not equipped/not available

(1) No

(2) Yes

(3) Deployed, unknown if flap(s) opened at designated tear points

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 2

(0) Not equipped/not available

(1) No

(2) Yes (specify): VERTICAL ABRASIONS

(3) Deployed, unknown if air bag module cover flap(s) damaged

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

43. Was There Damage To The Air Bag? 01

(00) Not equipped/not available

(01) Not damaged

Yes - Air Bag Damage

(02) Ruptured

(03) Cut

(04) Torn

(05) Holed

(06) Burned

(07) Abraded

(88) Other damage (specify):

(95) Damaged, details unknown

(96) Deployed, unknown if damaged

(97) Not deployed

(98) Unknown if deployed

(99) Unknown



**FIRST SEAT FRONTAL AIR BAG SYSTEM  
EVALUATION** *continued***HEAD RESTRAINT AND SEAT EVALUATION**

44. Source of Air Bag Damage 01  
 (00) Not equipped/not available  
 (01) Not damaged  
 (02) Object worn by occupant, (specify):  
 (03) Object carried by occupant, (specify):  
 (04) Adaptive/assistive controls, (specify):  
 (05) Fire in vehicle  
 (06) Thermal burns  
 (07) Rescue or emergency efforts  
 (08) Other damage source (specify):  
 (95) Damaged, unknown source  
 (96) Deployed, unknown if damaged  
 (97) Not deployed  
 (98) Unknown if deployed  
 (99) Unknown
45. Was The Air Bag Tethered? 9  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of tether straps):  
 (3) Deployed, unknown if tethered  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
46. Did The Air Bag Have Vent Ports? 2  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of vent ports):  
 (3) Deployed, unknown if vent ports present  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):  
 (3) Deployed, unknown if other occupant contact to air bag  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
48. Was This Occupant Wearing Eye-wear? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Eyeglasses/sunglasses  
 (3) Contact lenses  
 (4) Deployed, unknown if eyewear worn  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown

49. Head Restraint Type/Damage by Occupant at This Occupant Position 3  
 (0) No head restraints  
 (1) Integral—no damage  
 (2) Integral—damaged during accident  
 (3) Adjustable—no damage  
 (4) Adjustable—damaged during accident  
 (5) Add-on—no damage  
 (6) Add-on—damaged during accident  
 (8) Other (specify):  
 (9) Unknown
50. Seat Type (this Occupant Position) 02  
 (00) Occupant not seated or no seat  
 (01) Bucket  
 (02) Bucket with folding back  
 (03) Bench  
 (04) Bench with separate back cushions  
 (05) Bench with folding back(s)  
 (06) Split bench with separate back cushions  
 (07) Split bench with folding back(s)  
 (08) Pedestal (i.e., column supported)  
 (09) Box mounted seat (i.e., van type)  
 (10) Other seat type (specify):  
 (99) Unknown
51. Seat Orientation (this Occupant Position) 1  
 (0) Occupant not seated or no seat  
 (1) Forward facing seat  
 (2) Rear facing seat  
 (3) Side facing seat (inward)  
 (4) Side facing seat (outward)  
 (8) Other (specify):  
 (9) Unknown
52. Seat Track Adjusted Position Prior To Impact 6  
 (0) Occupant not seated or no seat  
 (1) Non-adjustable seat track
- Adjustable Seat Track*  
 (2) Seat at forward most track position  
 (3) Seat between forward most and middle track positions  
 (4) Seat at middle track position  
 (5) Seat between middle and rear most track positions  
 (6) Seat at rear most track position  
 (9) Unknown



**HEAD RESTRAINT AND SEAT EVALUATION** *continued***53. Seat Back Incline Prior and Post Impact** 2 3

- (00) Occupant not seated or no seat  
 (01) Not adjustable

*Upright prior to impact*

- (11) Moved to completely rearward position  
 (12) Moved to rearward midrange position  
 (13) Moved to slightly rearward position  
 (14) Retained pre-impact position  
 (15) Moved to slightly forward position  
 (16) Moved to forward midrange position  
 (17) Moved to completely forward position

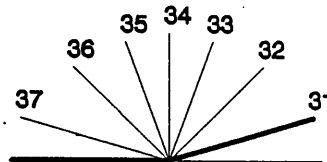
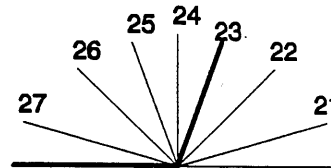
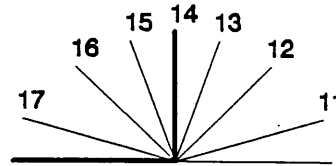
*Slightly reclined prior to impact*

- (21) Moved to completely rearward position  
 (22) Moved to rearward midrange position  
 (23) Retained pre-impact position  
 (24) Moved to upright position  
 (25) Moved to slightly forward position  
 (26) Moved to forward midrange position  
 (27) Moved to completely forward position

*Completely reclined prior to impact*

- (31) Retained pre-impact position  
 (32) Moved to rearward midrange position  
 (33) Moved to slightly rearward position  
 (34) Moved to upright position  
 (35) Moved to slightly forward position  
 (36) Moved to forward midrange position  
 (37) Moved to completely forward position

(99) Unknown

**54. Seat Performance (this Occupant Position)** 1

- (0) Occupant not seated or no seat  
 (1) No seat performance failure(s)  
 (2) Seat adjusters failed  
 (3) Seat back folding locks or "seat back" failed (specify): \_\_\_\_\_  
 (4) Seat track/anchors failed  
 (5) Deformed by impact of occupant  
 (6) Deformed by passenger compartment intrusion, (specify): \_\_\_\_\_  
 (7) Combination of above (specify): \_\_\_\_\_  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown



55. Child Safety Seat Make/Model 997  
(000) No child safety seat  
Applicable codes are found in your NASS CDS  
Data Collection, Coding and Editing  
(950) Built-in child safety seat  
(997) Other make/model (specify):  
[REDACTED]  
(998) Unknown make/model  
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 3

(0) No child safety seat

(1) Infant seat

(2) Toddler seat

(3) Convertible seat

(4) Booster seat - with shield

(5) Booster seat - without shield

(7) Other type child safety seat (specify):

---

(8) Unknown child safety seat type

(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 01  
(00) No child safety seat

***Designed for Rear Facing for This Age/Weight***

(01) Rear facing  
(02) Forward facing  
(08) Other orientation (specify):

(09) Unknown orientation

***Designed For Forward Facing for This Age/Weight***

(11) Rear facing  
(12) Forward facing  
(18) Other orientation (specify):

(19) Unknown orientation

***Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight***

(21) Rear facing  
(22) Forward facing  
(28) Other orientation (specify):

(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 12

59. Child Safety Seat Shield Usage 12

60. Child Safety Seat Tether Usage 03

**Note: Options below applicable to Variables OA58-OA60.**

(00) No child safety seat

***Not Designed With Harness/Shield/Tether***

(01) After market harness/shield/tether added, not used

(02) After market harness/shield/tether used

(03) Child safety seat used, but no after market harness/shield/tether added

(09) Unknown if harness/shield/tether added or used .

*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used

(12) Harness/shield/tether used

(19) Unknown if harness/shield/tether used

**Unknown If Designed With Harness/Shield/Tether**

(21) Harness/shield/tether not used

(22) Harness/shield/tether used

(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used



**INJURY CONSEQUENCES**61. Injury Severity (Police Rating) 4

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

62. Treatment - Mortality 1

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):  
\_\_\_\_\_

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (7) Treatment - other (specify):  
\_\_\_\_\_
- (8) Transported to a medical facility-unknown if treated
- (9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 2

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):  
\_\_\_\_\_
- (9) Unknown

64. Hospital Stay 01

- (00) Not Hospitalized
- \_\_\_\_\_ Code the number of days (up through 60) that the occupant stayed in hospital.
- (61) 61 days or more
- (99) Unknown

65. Working Days Lost 62

- \_\_\_\_\_ Code the number of days (up through 60) that the occupant lost from work due to the accident
- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP WORK HERE****VARIABLES 66-74****TO BE CODED BY THE ZONE CENTER**



**TO BE CODED BY THE ZONE CENTER****INJURY CONSEQUENCES**

66. Time to Death 06  
 \_\_\_\_\_ Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)  
 (00) Not fatal  
 (96) Fatal - ruled disease  
 (99) Unknown
67. 1st Medically Reported Cause of Death 01
68. 2nd Medically Reported Cause of Death 02
69. 3rd Medically Reported Cause of Death 03  
 \_\_\_\_\_ Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death  
 (00) Not fatal or no additional causes  
 (96) Mode of death given but specific injuries are not linked to cause of death. (specify):  
 \_\_\_\_\_  
 (97) Other result (includes fatal ruled disease) (specify):  
 \_\_\_\_\_  
 (99) Unknown
70. Number of Recorded Injuries for This Occupant 10  
 \_\_\_\_\_ Code the actual number of injuries recorded for this occupant.  
 (00) No recorded injuries  
 (97) Injured, details unknown  
 (99) Unknown if injured

**TRAUMA DATA**

71. Glasgow Coma Scale (GCS) Score 03  
 (at Medical Facility)  
 (00) Not injured  
 (01) Injured - not treated at medical facility  
 (02) No GCS Score at medical facility  
 (03-15) Code the actual value of the initial GCS Score recorded at medical facility.  
 (97) Injured, details unknown  
 (99) Unknown if injured
72. Was the Occupant Given Blood? 2  
 (1) No - blood not given  
 (2) Yes - blood given  
 (specify units): 210 cc  
 (9) Unknown if blood given
73. Arterial Blood Gases (ABG) -  $\text{HCO}_3$  04  
 (00) Not injured  
 (01) Injured, ABGs not measured or reported  
 (02-50) Code the actual value of the  $\text{HCO}_3$   
 (96) ABGs reported,  $\text{HCO}_3$  unknown  
 (97) Injured, details unknown  
 (99) Unknown if injured

**BELT USE DETERMINATION**

74. Primary Source of Belt Use Determination 1  
 (0) Not equipped/not available/destroyed or rendered inoperative  
 (1) Vehicle inspection  
 (2) Official injury data  
 (3) Driver/occupant interview  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown if belt used





# OCCUPANT INJURY FORM

1. Primary Sampling Unit Number

3. Vehicle Number

2. Case Number - Stratum

4. Occupant Number

## INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Data	Body Region	A.I.S. - 90			A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
			Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury						
1st	5. 1	6. 1	7. 4	8. 02	9. 04	10. 5	11. 8	12. 185	13. 1	14. 1	15. 00
2nd	16. 1	17. 1	18. 4	19. 04	20. 46	21. 5	22. 6	23. 185	24. 1	25. 1	26. 00
3rd	27. 1	28. 1	29. 5	30. 04	31. 06	32. 4	33. 1	34. 185	35. 1	36. 1	37. 00
4th	38. 1	39. 1	40. 5	41. 04	42. 06	43. 4	44. 2	45. 185	46. 1	47. 1	48. 00
5th	49. 1	50. 1	51. 5	52. 04	53. 06	54. 4	55. 6	56. 185	57. 1	58. 1	59. 00
6th	60. 1	61. 1	62. 4	63. 06	64. 88	65. 4	66. 9	67. 185	68. 1	69. 1	70. 00
7th	71. 1	72. 1	73. 5	74. 02	75. 00	76. 3	77. 8	78. 185	79. 1	80. 1	81. 00
8th	82. 1	83. 1	84. 4	85. 06	86. 84	87. 3	88. 9	89. 185	90. 1	91. 1	92. 00
9th	93. 1	94. 1	95. 9	96. 04	97. 02	98. 1	99. 0	100. 185	101. 1	102. 1	103. 00
10th	104. 1	105. 4	106. 5	107. 02	108. 12	109. 1	110. 2	111. 162	112. 1	113. 1	114. 00



# OCCUPANT INJURY DATA

	Source of Injury Data	A.I.S. - 90				A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
		Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury						
* 11th	1	1	1	30	00	6	0	185	1	1	00
* CODED INJURIES QUALIFY FOR CRUSH CODE, LINE 11											
12th	—	—	—	—	—	—	—	—	—	—	—
13th	—	—	—	—	—	—	—	—	—	—	—
14th	—	—	—	—	—	—	—	—	—	—	—
15th	—	—	—	—	—	—	—	—	—	—	—
16th	—	—	—	—	—	—	—	—	—	—	—
17th	—	—	—	—	—	—	—	—	—	—	—
18th	—	—	—	—	—	—	—	—	—	—	—
19th	—	—	—	—	—	—	—	—	—	—	—
20th	—	—	—	—	—	—	—	—	—	—	—
21st	—	—	—	—	—	—	—	—	—	—	—
22nd	—	—	—	—	—	—	—	—	—	—	—
23rd	—	—	—	—	—	—	—	—	—	—	—
24th	—	—	—	—	—	—	—	—	—	—	—
25th	—	—	—	—	—	—	—	—	—	—	—



# INJURY SOURCES

## FRONT

- (001) Windshield
- (002) Mirror
- (003) Sunvisor
- (004) Steering wheel rim
- (005) Steering wheel hub/spoke
- (006) Steering wheel (combination of codes 004 and 005)
- (007) Steering column, transmission selector lever, other attachment
- (008) Cellular telephone or CB radio
- (009) Add on equipment (e.g., tape deck, air conditioner)
- (010) Left instrument panel and below
- (011) Center instrument panel and below
- (012) Right instrument panel and below
- (013) Glove compartment door
- (014) Knee bolster
- (015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (017) Windshield reinforced by exterior object (specify):
- (019) Other front object (specify):

## LEFT SIDE

- (051) Left side interior surface, excluding hardware or armrests
- (052) Left side hardware or armrest
- (053) Left A (A1/A2)-pillar
- (054) Left B-pillar
- (055) Other left pillar (specify):
- (056) Left side window glass
- (057) Left side window frame
- (058) Left side window sill
- (059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (060) Other left side object (specify):

## RIGHT SIDE

- (101) Right side interior surface, excluding hardware or armrests

- (102) Right side hardware or armrest
- (103) Right A (A1/A2)-pillar
- (104) Right B-pillar
- (105) Other right pillar (specify):
- (106) Right side window glass
- (107) Right side window frame
- (108) Right side window sill
- (109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (110) Other right side object (specify):

## INTERIOR

- (151) Seat, back support
- (152) Belt restraint webbing/buckle
- (153) Belt restraint B-pillar or door frame attachment point
- (154) Other restraint system component (specify):
- (155) Head restraint system
- (160) Other occupants (specify):
- (161) Interior loose objects
- (162) Child safety seat (specify): HARNES | SHIELD
- (163) Other interior object (specify):

## AIR BAG

- (170) Air bag-driver side
- (171) Air bag-driver side and eyewear
- (172) Air bag-driver side and jewelry
- (173) Air bag-driver side and object held
- (174) Air bag-driver side and object in mouth
- (175) Air bag compartment cover-driver side
- (176) Air bag compartment cover-driver side and eyewear
- (177) Air bag compartment cover-driver side and jewelry
- (178) Air bag compartment cover-driver side and object held
- (179) Air bag compartment cover-driver side and object in mouth
- (180) Air bag-passenger side
- (181) Air bag-passenger side and eyewear
- (182) Air bag-passenger side and jewelry

- (183) Air bag-passenger side and object held
- (184) Air bag-passenger side and object in mouth
- (185) Air bag compartment cover-passenger side
- (186) Air bag compartment cover-passenger side and eyewear
- (187) Air bag compartment cover-passenger side and jewelry
- (188) Air bag compartment cover-passenger side and object held
- (189) Air bag compartment cover-passenger side and object in mouth
- (190) Other air bag (specify)
- (195) Other air bag compartment cover (specify)

## ROOF

- (201) Front header
- (202) Rear header
- (203) Roof left side rail
- (204) Roof right side rail
- (205) Roof or convertible top

## FLOOR

- (251) Floor (including toe pan)
- (252) Floor or console mounted transmission lever, including console
- (253) Parking brake handle
- (254) Foot controls including parking brake

## REAR

- (301) Backlight (rear window)
- (302) Backlight storage rack, door, etc.
- (303) Other rear object (specify):

## ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT

- (401) Hand controls for braking/acceleration
- (402) Steering control devices (attached to OEM steering wheel)
- (403) Steering knob attached to steering wheel
- (405) Replacement steering wheel (i.e., reduced diameter)
- (406) Joy stick steering controls
- (407) Wheelchair tie-downs
- (408) Modification to seat belts, (specify):
- (409) Additional or relocated switches, (specify):
- (410) Raised roof

- (411) Wall mounted head rest (used behind wheel chair)
- (412) Other adaptive device (specify):

## EXTERIOR of OCCUPANT'S VEHICLE

- (451) Hood
- (452) Outside hardware (e.g., outside mirror, antenna)
- (453) Other exterior surface or tires (specify):
- (454) Unknown exterior objects

## EXTERIOR OF OTHER MOTOR VEHICLE

- (501) Front bumper
- (502) Hood edge
- (503) Other front of vehicle (specify):
- (504) Hood
- (505) Hood ornament
- (506) Windshield, roof rail, A-pillar
- (507) Side surface
- (508) Side mirrors
- (509) Other side protrusions (specify):
- (510) Rear surface
- (511) Undercarriage
- (512) Tires and wheels
- (513) Other exterior of other motor vehicle (specify):
- (514) Unknown exterior of other motor vehicle

## OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

- (551) Ground
- (598) Other vehicle or object (specify):
- (599) Unknown vehicle or object

## NONCONTACT INJURY

- (601) Fire in vehicle
- (602) Flying glass
- (603) Other noncontact injury source (specify):
- (604) Air bag exhaust gases
- (697) Injured, unknown source



## OCCUPANT INJURY CLASSIFICATION

Body Region	Specific Anatomic Structure	Level of Injury	Aspect
(1) Head		Specific injuries are assigned consecutive two-digit numbers beginning with 02.	(1) Right
(2) Face			(2) Left
(3) Neck	<u>Vessels, Nerves, Organs.</u>		(3) Bilateral
(4) Thorax	<u>Bones, Joints</u> are assigned consecutive two digit numbers beginning with 02.	To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.	(4) Central
(5) Abdomen			(5) Anterior
(6) Spine			(6) Posterior
(7) Upper Extremity			(7) Superior
(8) Lower Extremity			(8) Inferior
(9) Unspecified	The exceptions to this rule apply to:		(9) Unknown
			(0) Whole region
<b>Type of Anatomic Structure</b>	<u>Whole Area</u>		
(1) Whole Area	(02) Skin - Abrasion		
(2) Vessels	(04) Skin - Contusion		
(3) Nerves	(06) Skin - Laceration		
(4) Organs (includes Muscles/ligaments)	(08) Skin - Avulsion		
(5) Skeletal (includes joints)	(10) Amputation		
(6) Head - LOC	(20) Burn		
(9) Skin	(30) Crush		
	(40) Degloving		
	(50) Injury - NFS		
	(90) Trauma, other than mechanical		
	<u>Head - LOC</u>		
	(02) Length of LOC		
	(04) Level		
	(06) of		
	(08) Consciousness		
	(10) Concussion		
	<u>Spine</u>		
	(02) Cervical		
	(04) Thoracic		
	(06) Lumbar		

## Abbreviated Injury Scale

- (1) Minor Injury
- (2) Moderate Injury
- (3) Serious Injury
- (4) Severe Injury
- (5) Critical Injury
- (6) Maximum (untreatable)
- (7) Injured, unknown severity

## SOURCE OF INJURY DATA

OFFICIAL RECORDS

- (1) Autopsy records with or without hospital/medical records
- (2) Hospital/medical records other than emergency room (e.g., discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

UNOFFICIAL RECORDS

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify): \_\_\_\_\_
- (9) Police

## INJURY SOURCE

## CONFIDENCE LEVEL

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

## DIRECT/INDIRECT INJURY

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source



**The following head injuries qualify for a crush code (AIS-6) under AIS 90 coding conventions**

Circumfrential skull fractures involving the right parietal bone, left parietal bone, and occipital bone, AIS-4; passenger side air bag module cover flap/deploying air bag/child restraint

Extensive destruction of the brain with focal areas of hemorrhage and lacerations, AIS-4; passenger side air bag module cover flap/deploying air bag/child restraint

Contusion of the brain stem, AIS-5; passenger side air bag module cover flap/deploying air bag/child restraint

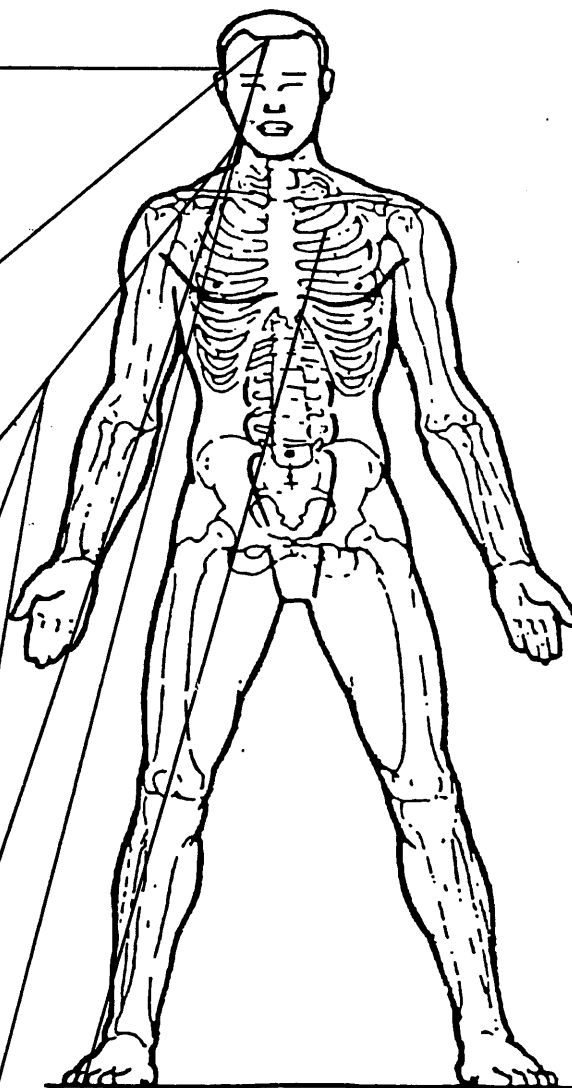
Massive subdural hematoma, AIS-5; passenger side air bag module cover flap/deploying air bag/child restraint

Basilar skull fracture, AIS-3; passenger side air bag module cover flap/deploying air bag/child restraint

Generalized swelling of the head with circumfrential subgaleal hemorrhages, AIS-2; passenger side air bag module cover flap/deploying air bag/child restraint

Generalized subarachnoid hemorrhage, AIS-3; passenger side air bag module cover flap/deploying air bag/child restraint

Left rib fracture, AIS-1; integral shoulder harness and/or integral shield of the child restraint





**ATTACHMENT G**

**Ford Escort Owner's Manual  
(Restraint Sections)**



Procedure to Correct a Rotated Tongue on the Safety Belt (Front and/or rear outboard seating positions) .....	74
Rear Lap Belt .....	77
<b>Air Bag Supplemental Restraint System (SRS) .....</b>	<b>78</b>
The Importance of Wearing Safety Belts .....	79
The Importance of Being Properly Seated .....	80
How the Air Bag Supplemental Restraint System Operates .....	81
<b>Safety Restraints for Children .....</b>	<b>89</b>
Built-In Child Seat (If equipped) .....	92
Built-In Child Seat Belt Retractors .....	95
Safety Belts for Children .....	107
Safety Seats for Children .....	108
Installing the Child Safety Seat with a Locking Clip .....	111
Installing a Child Safety Seat using a Locking Clip (For lap and shoulder belts with sliding tongues) .....	115
Installing Safety Seats in the Front Seat (U.S. vehicles and Canadian 4-door sedan, 4-door hatchback and wagon vehicles) .....	121
Installing Child Safety Seats at the Rear Outboard Seating Positions (For lap and shoulder belts with cinch tongues) .....	127
Installing a Child Safety Seat at the Rear Center Seating Position (For all vehicles) .....	134
Attaching Child Safety Seats with Tether Straps (For all vehicles) .....	135

## Safety Restraints

### Using Safety Restraints Properly

#### Safety Belts

The use of safety belts helps to restrain you and your passengers in case of a collision. In most states and in Canada, the law requires their use. We strongly recommend that you use them every time you travel in your vehicle.

Safety belts provide best restraint when:

- ☐ the seatback is upright
- ☐ the occupant is sitting upright (not slouched)
- ☐ the lap belt is snug and low on the hips
- ☐ the shoulder belt is snug against the chest
- ☐ the knees are straight forward

For your safety, your vehicle has different types of safety belts:

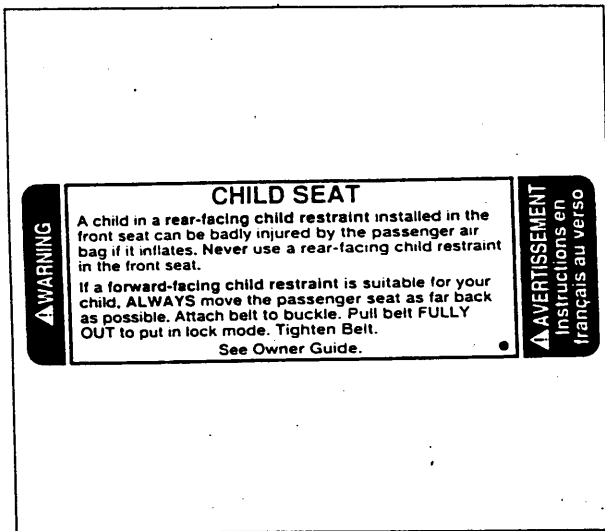
- ☐ **Motorized Shoulder Belt Passive Restraints**  
— an automatic shoulder belt for people who sit in the front seat.
- ☐ **Manual Front Lap Belts** — for people who sit in a front seat and have an automatic shoulder belt.
- ☐ **Manual Front Lap and Shoulder Belts**  
(available only on Canadian vehicles) — for people who sit in the front seat.
- ☐ **Rear Lap and Shoulder Belts** — for people who sit next to the side windows in the rear seat.



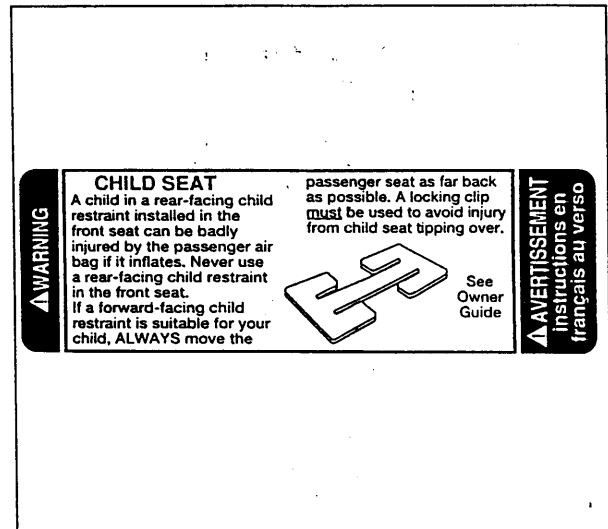
- ❑ **Rear Lap Belts** — for people who sit in the center of the rear seat.

Your vehicle is equipped with one of two front seat safety restraint retractor systems, depending upon when your vehicle was built.

If your vehicle is equipped with a dual locking mode retractor for the front seat passenger, the belt will have the following label:



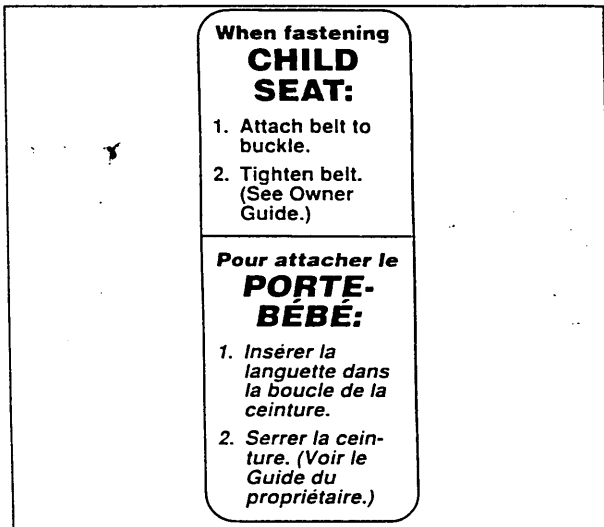
If your vehicle is not equipped with a dual locking mode retractor for the front seat passenger, the belt will have the following label:



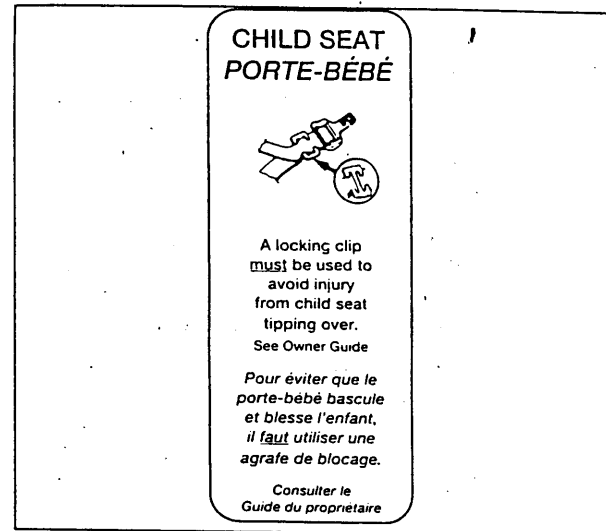
Your vehicle is also equipped with one of two rear safety restraint systems, depending on when your vehicle was built.



If your vehicle is equipped with rear outboard belts having cinch tongues, the rear seat belts will have the following label:



If your vehicle is equipped with rear outboard belts having sliding tongues, the rear seat belts will have the following label:



See the following sections in this chapter for directions on how to properly use these safety belts. Also see *Safety Restraints for Children* in this chapter for special instructions about using safety belts for children.

**Warning:** Make sure that you and your passengers, including pregnant women, wear safety belts. Be sure that the lap belt portion of your safety belt fits snugly and as low as possible around the hips. If safety belts are not used properly, the risk of you or your passengers being injured in a collision greatly increases.



**Warning:** Do not allow any people to ride in the cargo area of your vehicle. People who are not riding in seats with their safety belts fastened are much more likely to be injured in a collision.

**Warning:** Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. Never swing it around the neck over the inside shoulder. Never use a single belt for more than one person. Failure to follow these precautions could increase the risk and/or severity of injury in a collision.

Always drive and ride with your seatback upright and both the shoulder and lap belt snug, with the lap belt low on the hips. This will reduce the risk of serious injury to the abdomen or neck that could be caused by sliding under the safety belts in a collision.

**Warning:** Children should always ride with the seatback in the fully upright position. When the seatback is not fully upright, there is a greater risk that the child will slide under the safety belt and be seriously injured in a collision.

Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Never use a single belt for more than one person or across more than one seating position. This greatly increases the risk that one or both of the people will be injured in a collision. Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair.



**Warning:** Your vehicle is equipped with a right front passenger air bag. Air bags deploy with great force, faster than the blink of an eye. Front passengers, especially children and small adults, must never sit on the front edge of the seat, stand near the glove compartment of the instrument panel, or lean over near the air bag cover when the vehicle is moving. All occupants should sit with their backs against the seatback, move the seat to the most rearward position if possible and use the safety belts. Children weighing less than 40 lbs. (18 kg) always should use child or infant seats. When using forward-facing child seats move the passenger seat as far back from the instrument panel as possible. **NEVER SECURE REAR-FACING INFANT SEATS IN THE FRONT SEAT, BECAUSE THE FORCE OF THE RAPIDLY INFLATING PASSENGER AIR BAG COULD PUSH THE TOP OF THE REAR-FACING SEAT AGAINST THE VEHICLE SEATBACK, ARMRESTS OR CONSOLE. REAR-FACING INFANT SEATS MUST ALWAYS BE SECURED IN THE REAR SEAT.** Failure to follow these instructions could result in serious injury.

**Warning:** Lock the doors of your vehicle before driving to lessen the risk of the door coming open in a collision.

### Safety Belt Maintenance

Check the safety belt systems periodically to make sure that they work properly and are not damaged.

**Warning:** All safety belt assemblies, including retractors, buckles, front seat belt buckle support assemblies (slide bar) (if so equipped), child safety seat tether bracket assemblies (if so equipped), and attaching hardware, should be inspected after any collision. Ford recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and continue to operate properly, they do not need to be replaced. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

### Safety Belt Extension Assembly

For some people, the safety belt may be too short even when it is fully extended. You can add about eight inches (20 cm) to the belt length with a safety belt extension assembly. Safety belt extensions are available from your dealer.

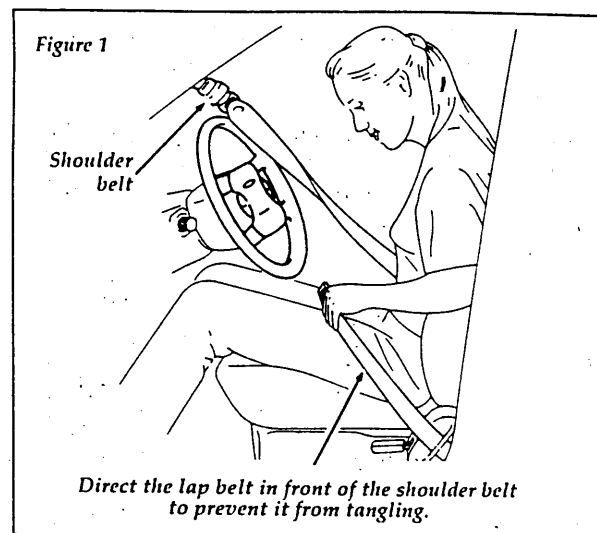


**Warning:** Use only extensions manufactured by the same supplier as the safety belt. Manufacturer identification is located at the end of the webbing on a label. Also, use the safety belt extension only if the safety belt is too short for you when fully extended. Do not use the extension to change the fit of the shoulder belt across the torso. Failure to follow these instructions will affect the performance of the safety belts and increase the risk of personal injury.

### Motorized Shoulder Belt Passive Restraint System (Not available on Canadian vehicles)

The front seat shoulder belts automatically adjust and together with the manual lap belt, help to provide added restraint in the event of a collision.

While you drive, the shoulder belt adjusts to your movement. However, if you brake hard, turn hard, or if your car receives an impact of 5 mph (8 km/h) or more, the shoulder belt locks and helps reduce your forward movement.



The proper position of the front lap safety belt

**Warning:** The lap belt must be manually buckled by the driver and passenger and should fit snugly and as low as possible around the hips, not around the waist. Failure to do so may increase the risk of injury in the event of a collision.

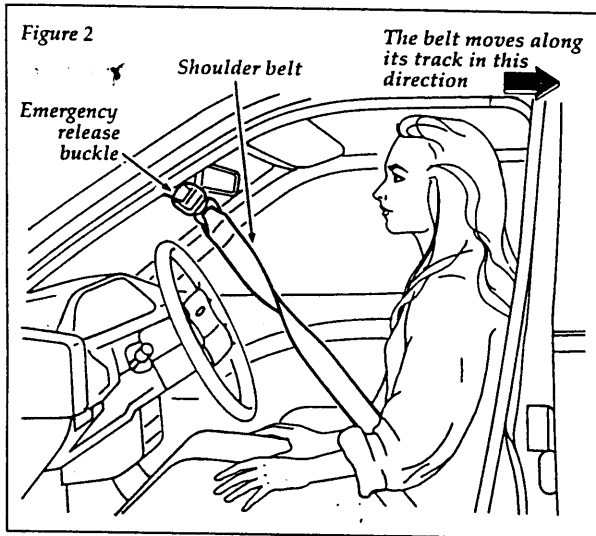
To operate the motorized shoulder belt:

1. Get into your vehicle and close the door. Check to be sure the shoulder belt is latched to the emergency release buckle.
2. If it is not latched, pull the shoulder belt from the retractor and buckle it to the emergency release buckle. Note the twist in the shoulder belt as in Figures 1 and 2.
3. Turn the ignition key to the ON position.

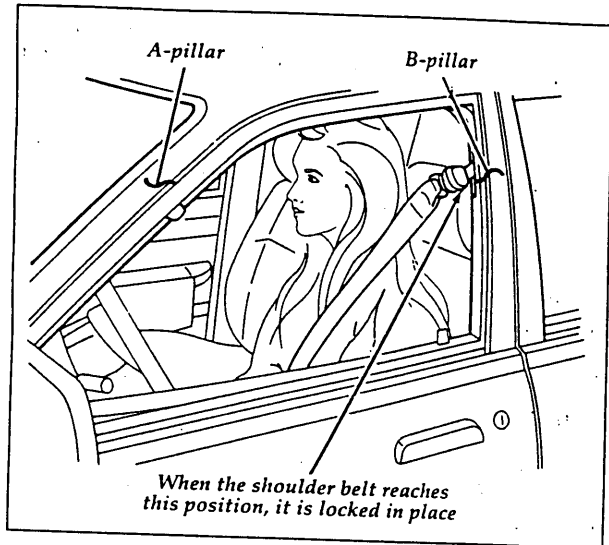


A motor causes the shoulder belt to slide along its track from the A-pillar to the B-pillar until it locks in place.

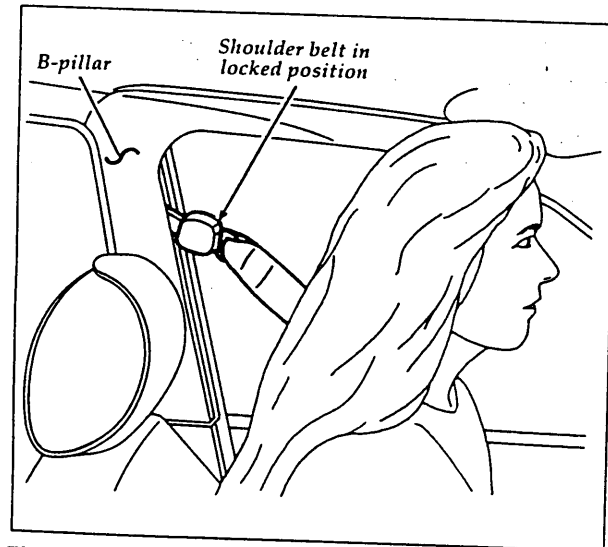
If the belt does not lie flat against you, or the belt has a twist in it at the retractor, unlatch the belt at the buckle, remove twist, and relatch the belt into the buckle.



The shoulder belt sliding along its track



The shoulder belt in the locked position



The shoulder belt in the locked position



If the driver does not fasten the lap belt before the ignition key is turned to ON, the chime will sound for four (4) to eight (8) seconds. The safety belt warning indicator lamp in the instrument cluster will also illuminate for one to two minutes. In the unlikely event the shoulder belt should stall before it reaches the B-pillar, the indicator light will flash continuously until the shoulder belt is in its locked position at the B-pillar. If the indicator lamp remains illuminated for more than one minute, check to be sure that both shoulder belts are latched to the emergency release buckle. If the indicator lamp remains illuminated with both front seat shoulder belts latched to the emergency release buckles, refer to the section titled *What To Do If Your Shoulder Belt Does Not Engage Properly* before driving the vehicle.

Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. Never swing it around your neck over the inside shoulder. Never use a single belt for more than one person. Failure to follow these precautions could increase the risk and/or severity of injury in a collision.

When the ignition is in any position and the door is opened, the shoulder belt will move forward to the A-pillar. This will allow ample room for the driver or passenger to exit from the vehicle. DO NOT use the belt as an assist handle when entering or exiting the vehicle. The door should not be opened while the vehicle is in motion.

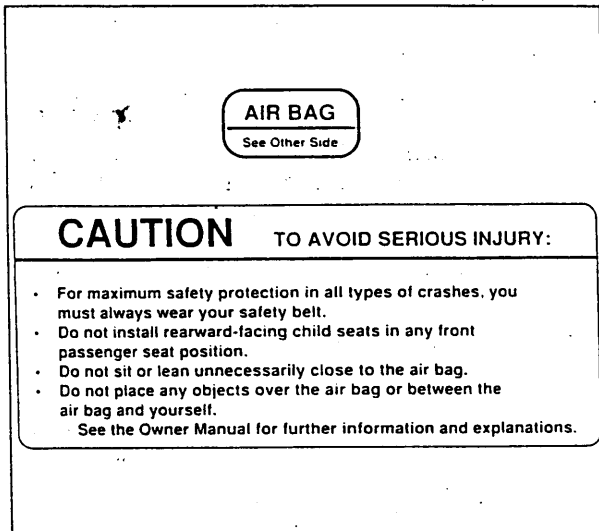
**Warning:** Always drive and ride with your seatback upright and the lap belt portion of your safety belt snug and low across the hips. This will reduce the risk of serious injury to the abdomen or neck that could be caused by sliding under the safety belts in a collision.

**Warning:** Children should always ride with the seatback in the fully upright position. When the seatback is not fully upright, there is a greater risk that the child will slide under the safety belt and be seriously injured in a collision.

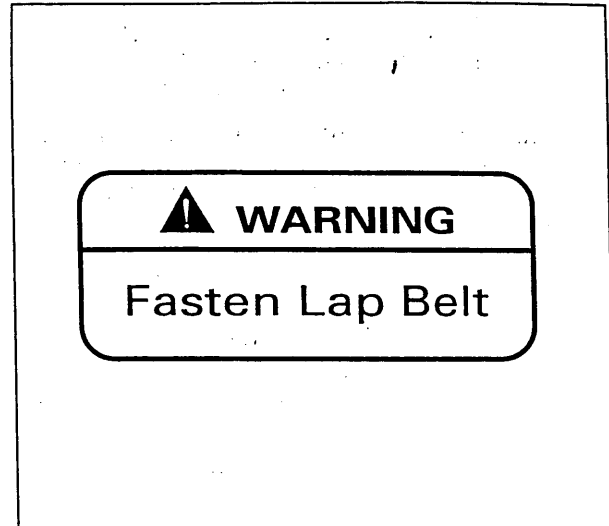


## Important For Your Safety

Before driving your vehicle, read the label on the back of the sun visor or on the headliner above the driver's seat (Canadian vehicles). See the following figures.



Driver and passenger sun visor labels



Label located on headliner (U.S. vehicles only)

An additional warning label is located on the headliner (U.S. vehicles only). On vehicles equipped with a moon roof, the label is located on the manual override access panel.

### *What To Do If Your Shoulder Belt Does Not Engage Properly*

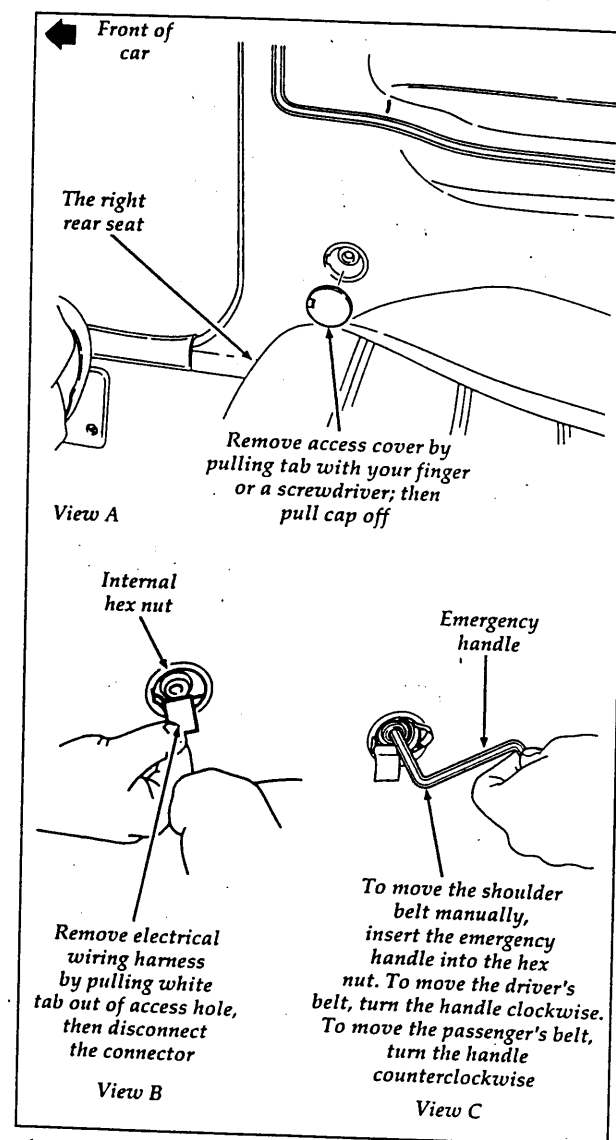
If your shoulder belt does not move all the way across to the locked position on the B-pillar, follow these steps:

1. Make sure the ignition switch is in the LOCK position.
2. Make sure your door is fully closed. The shoulder belt does not work if your door is open and will remain in the forward position at the A-pillar.



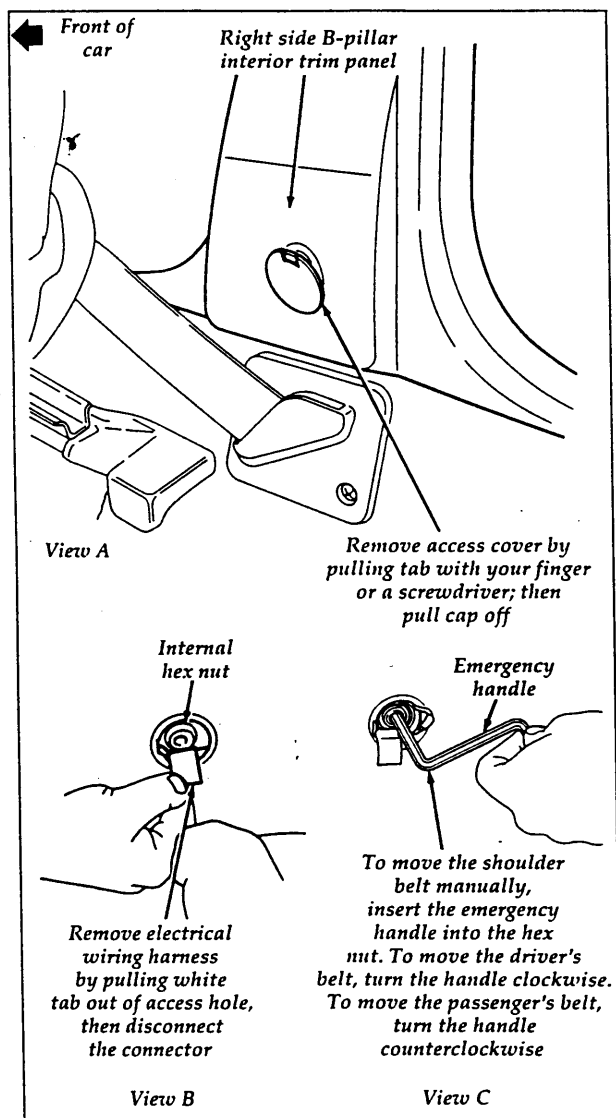
**Warning:** The vehicle should not be driven unless the doors are fully closed and the shoulder belts are in the locked position on the door lock pillar.

3. Unbuckle the shoulder belt by pressing the red emergency release button on the buckle. Then, reinsert the shoulder belt tongue into the buckle until you hear a snap and feel the latch engage.
4. Turn the key to the ON position.
5. If the shoulder belt doesn't move across you, turn the ignition switch to the LOCK position and then release the shoulder belt from the buckle.
6. Remove the access cap located in the lower portion of the trim panel, rearward of the front door opening.
7. Pull the electrical wiring harness out through the access hole and disconnect the connector. The electrical wiring harness is located near the internal hex nut. To disconnect the connector, pull the left and right sides apart. You may have to loosen the tape to disconnect the electrical connector.
8. Then, insert the emergency handle into the hex nut inside the access hole. The emergency handle is stored in the owner portfolio in the glove compartment.



Moving the shoulder belt manually — 2-door model





Moving the shoulder belt manually — 4-door model

9. Turn the emergency handle to move the buckle rearward until you hear a click. To move the driver's buckle, turn the handle clockwise. To move the passenger's buckle, turn the handle counterclockwise.
10. Reinsert the shoulder belt tongue into the buckle.

**Warning:** If it is necessary to use the emergency handle to put the shoulder belt in position, have the system serviced by a qualified technician as soon as possible.

#### Manual Front Lap Belts (U.S. vehicles equipped with motorized passive restraint)

You should always wear the lap belt in addition to the shoulder belt.

**Warning:** The lap belt must be manually buckled by the driver and passenger and should fit snugly and as low as possible around the hips, not around the waist. Failure to do so may increase the risk of injury in the event of a collision.

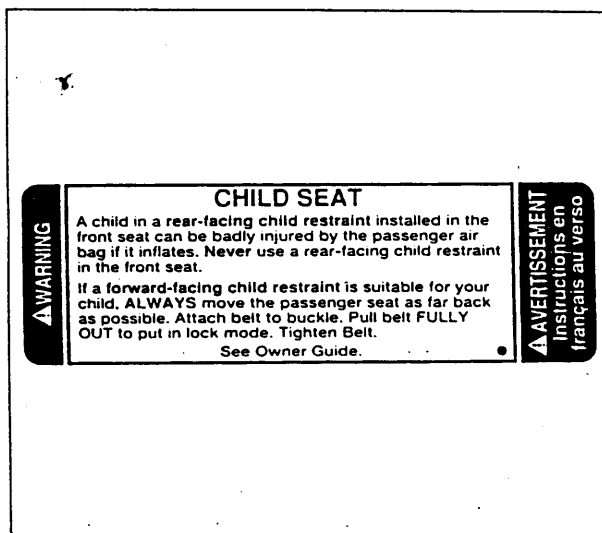
**Warning:** Front and rear seat occupants, including pregnant women, should wear both lap and shoulder belts for optimum protection in a collision.

To fasten the lap belt: Pull the belt out of the retractor and bring it across your lap. Insert the tongue into the buckle until it snaps and locks in place.

Your vehicle is equipped with one of two front passenger lap belts depending upon when your vehicle was built.

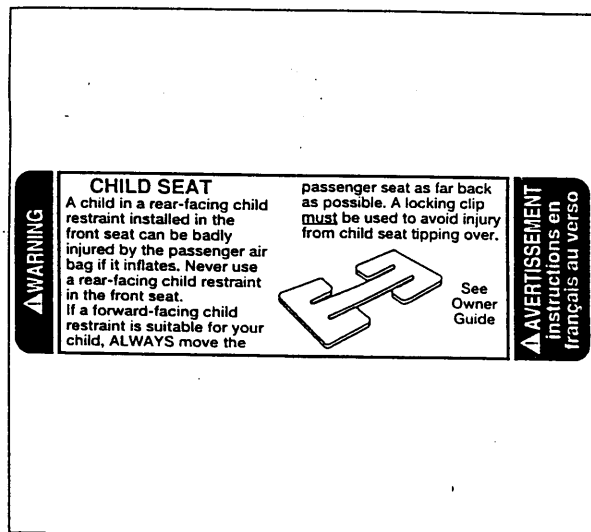


If your vehicle is equipped with a dual locking mode retractor for the front seat passenger, the lap belt will have the following label:



Refer to the section *Front Passenger Lap Belt Retractor* (U.S. vehicles equipped with motorized passive restraint) or *Front Passenger Lap/Shoulder Belt Retractor* (Canadian 2-door vehicles only) in this chapter for complete information on vehicle sensitive and automatic locking modes.

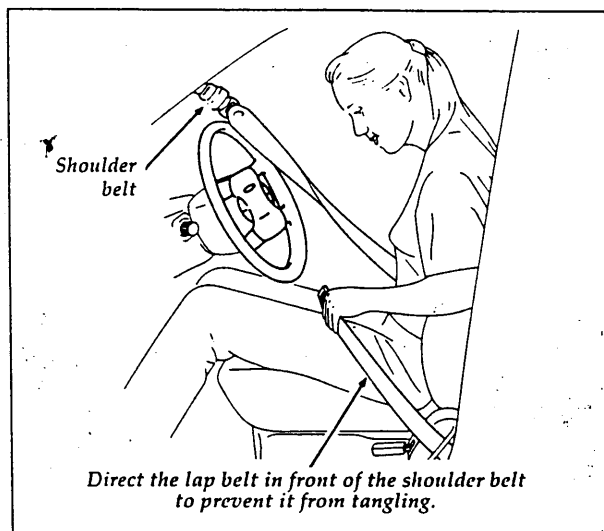
If your vehicle is not equipped with a dual locking mode retractor for the front seat passenger, the lap belt will have the following label:



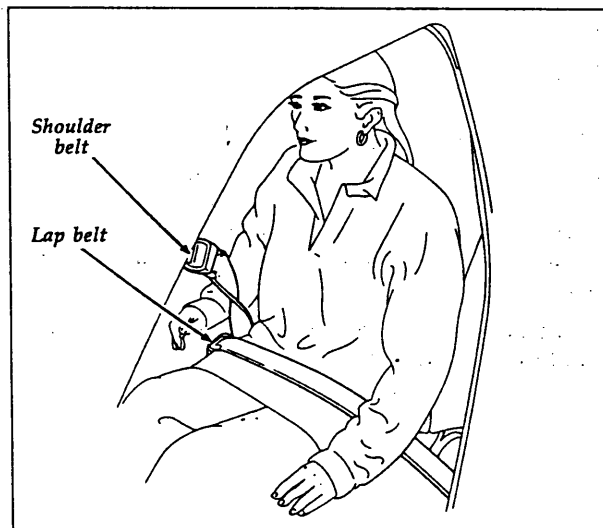
The lap belt retractor will allow the occupant freedom of movement, locking tight only on hard braking, hard cornering or impacts of approximately 5 mph (8 km/h) or more. The retractor can be made to lock by pulling on the belt.

Front passenger safety belts with dual locking mode retractors can also be locked to tightly secure a child safety seat.

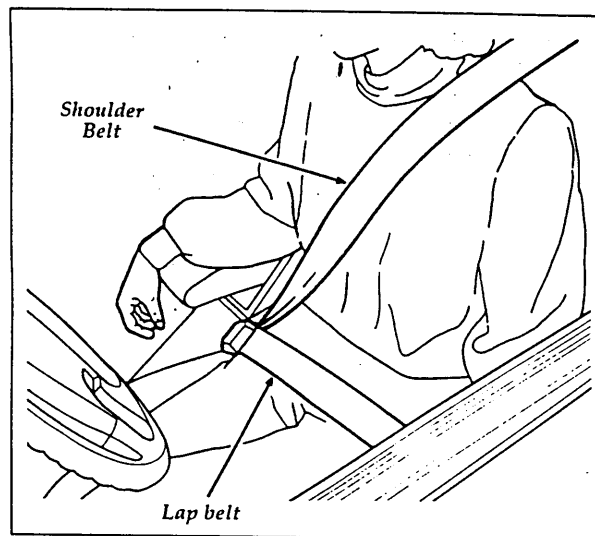




Buckling the lap belt



The lap belt fastened



The lap and shoulder belts in place

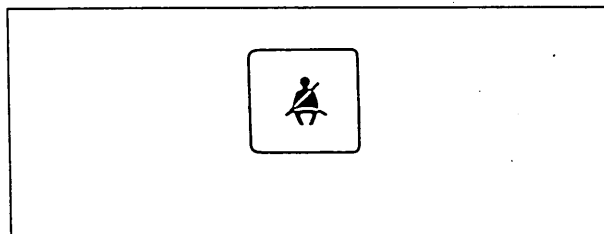
**Safety Belt Light/Chime (U.S. vehicles equipped with motorized passive restraint)**

This warning light and chime remind you to fasten your safety belt. One of the following will take place:

- ☐ If the lap belt is not buckled when the key is turned to the ON position, the light will come on for one to two minutes and the chime will sound for four to eight seconds.
- ☐ If the lap belt is buckled while the light is on and the chime is sounding, both the light and chime will turn off.
- ☐ If the lap belt is buckled before the key is turned to the ON position, neither the light nor chime will activate.



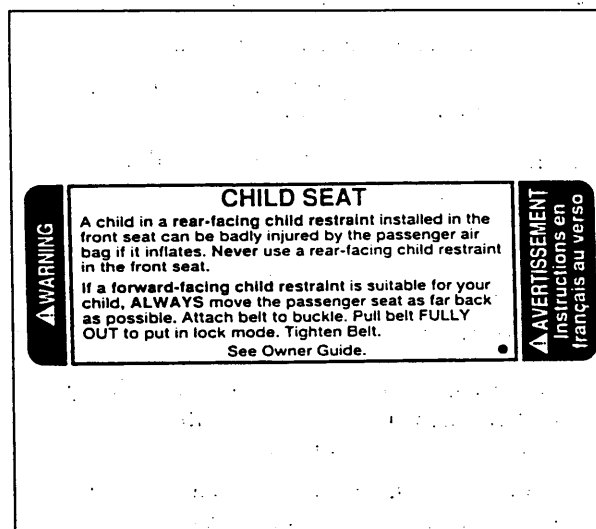
If the warning light remains illuminated for more than one minute, check to be sure that both shoulder belts are latched to the emergency release buckle. If the warning light remains illuminated with both front seat shoulder belts latched to the emergency release buckles, refer to the section titled *What to Do If Your Shoulder Belt Does Not Engage Properly* before driving the vehicle.



The safety belt light

### Front Passenger Lap Belt Retractor (U.S. vehicles equipped with motorized passive restraint)

If your vehicle is equipped with a dual locking mode retractor for the front seat passenger, the lap belt will have the following label:



For vehicles equipped with a dual locking mode retractor for the front seat passenger, the retractor modes function as follows:

#### *Vehicle sensitive (emergency) locking mode*

In this operating mode, the lap belt retractor will allow the occupant freedom of movement, locking tight only on hard braking, hard cornering or impacts of approximately 5 mph (8 km/h) or more. The retractor can be made to lock by pulling on the belt.



### *Automatic locking mode*

In this operating mode, the lap belt retractor will remain locked and does not allow the occupant freedom of movement. This mode provides the following:

- ☐ A tight lap belt on the hips.
- ☐ Forward-facing child seat installation.

**Warning:** Rear-facing infant seats should never be placed in the front seat.

This mode **must be used** when installing a forward-facing child seat on the front passenger seat. To switch the retractor from the emergency locking mode, perform the following steps:

1. Buckle the lap belt.
2. Grasp the lap belt below the child seat label. Pull upward until all of the belt is extracted and a click is heard. At this time, the lap belt retractor is in the automatic locking mode (child restraint mode).
3. Allow the belt to retract. A clicking sound will be heard as the belt retracts. This indicates that the retractor is in the automatic locking mode.
4. Pull down on the belt to remove slack in the belt.

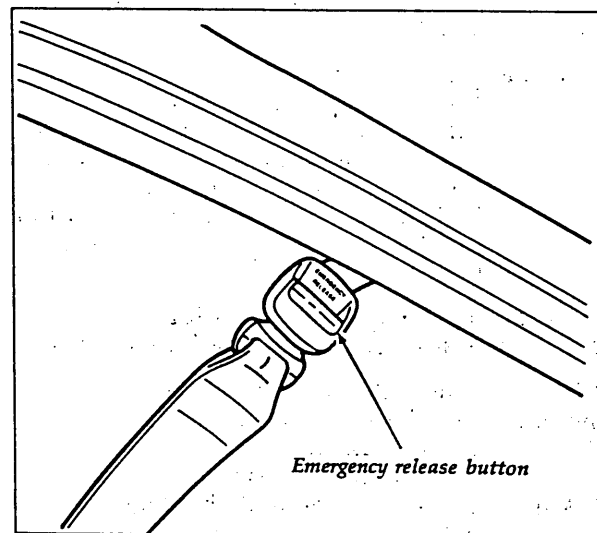
**NOTE:** When the lap belt is unbuckled and allowed to retract completely, the retractor will switch to the vehicle sensitive (emergency) locking mode. See the detailed instructions under *Safety Seats for Children* in this chapter.

### *Shoulder Belt Emergency Release Buttons*

If the shoulder belt locks up in a collision, it may stay locked. To unlock the belt, press the emergency release button on the shoulder belt buckle. This allows the tongue to unlatch from the buckle. If the shoulder belt is unlatched and partially retracted, a warning light in the instrument panel lights up and remains on; the warning chime sounds for about five (5) seconds.

To insert the tongue back into the shoulder belt buckle, push it in until you hear a click.

If the belt does not lie flat against you, or the belt has a twist in it at the retractor, unlatch the belt at the buckle, remove twist, and relatch the belt into the buckle.



The emergency release button for the shoulder belt

After a collision, refer to *Safety Belt Maintenance* in this section.



Adjust the belt so that it fits snugly around your hips, as low as possible.

If you need to lengthen the belt, unfasten it and repeat the procedure above. If you need to shorten the belt, pull on the loose end of the webbing.

To unfasten the belt, push the release button on the end of the buckle. This allows the tongue to unlatch from the buckle. Because the center lap belt does not have a retractor, it should be shortened and fastened when not in use.

### **Air Bag Supplemental Restraint System (SRS)**

Your vehicle is equipped with a driver side air bag supplemental restraint system, located in the steering wheel and identified by the letters "SRS" in the center of the wheel.

The letters "SRS" above the glove compartment indicate your vehicle is also equipped with a right front passenger air bag.

The driver and right front passenger air bag are Supplemental Restraint Systems (SRS), provided at these seating positions in addition to the lap/shoulder belt and are designed to supplement the protection provided to properly belted occupants in moderate to severe frontal collisions. The supplemental air bag system does not provide restraint to the lower body.

### **The Importance of Wearing Safety Belts**

**Warning:** ALWAYS WEAR YOUR SAFETY BELT!

**Warning:** All occupants of the vehicle, including the driver, should always wear their safety belts, whether or not an air bag Supplemental Restraint System is also provided at their seating position. Failure to do so may increase the risk of severe injury or death in the event of a collision.

**Warning:** Safety belts must be worn by all vehicle occupants to be properly restrained and help reduce the risk of injury in a collision.

There are four very important reasons to use safety belts even with an air bag system. Use your safety belts to:

- ☐ help keep you in the proper position (away from the air bag) when it inflates
- ☐ reduce the risk of harm in rollover, side or rear impact collisions, because an air bag is not designed to inflate in such situations
- ☐ reduce the risk of harm in frontal collisions that are not severe enough to activate the supplemental air bag
- ☐ reduce the risk of being thrown from your vehicle

Air bags are most effective when used in conjunction with safety belts.



### The Importance of Being Properly Seated

In a collision, the air bag must inflate extremely fast to help provide additional protection for you. In order to do this, the air bag must inflate with considerable force. If you are not seated in a normal riding position with your back against the seatback, the air bag may not protect you properly and could possibly hurt you as it inflates.

**Warning:** Your vehicle is equipped with a right front passenger air bag. Air bags deploy with great force, faster than the blink of an eye. Front passengers, especially children and small adults, must never sit on the front edge of the seat, stand near the glove compartment of the instrument panel, or lean over near the air bag cover when the vehicle is moving. All occupants should sit with their backs against the seatback, move the seat to the most rearward position if possible and use the safety belts. Children weighing less than 40 lbs. (18 kg) always should use child or infant seats. When using forward-facing child seats move the passenger seat as far back from the instrument panel as possible. **NEVER SECURE REAR-FACING INFANT SEATS IN THE FRONT SEAT, BECAUSE THE FORCE OF THE RAPIDLY INFLATING PASSENGER AIR BAG COULD PUSH THE TOP OF THE REAR-FACING SEAT AGAINST THE VEHICLE SEATBACK, ARMRESTS OR CONSOLE. REAR-FACING INFANT SEATS MUST ALWAYS BE SECURED IN THE REAR SEAT.** Failure to follow these instructions could result in serious injury.

80

### Warning:

Do not place objects or mount equipment on or near the air bag module covers (identified by the letters "SRS") on the steering wheel and instrument panel, or in front seat areas that may come in contact with a deploying air bag, because any such objects could cause harm if the vehicle is in a collision severe enough to cause the air bag to inflate. Failure to follow this instruction may increase the risk of personal injury in the event of a collision.

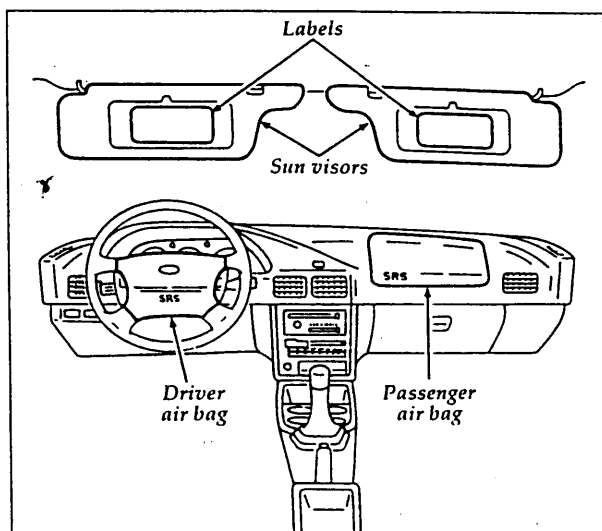
### How the Air Bag Supplemental Restraint System Operates

The Air Bag Supplemental Restraint System has two main parts. One part is the air bag system with the driver and passenger air bags and inflators. The second part is the electrical system which has impact sensors and a diagnostic module. The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system readiness, including the crash sensors, the system wiring, the air bag readiness light, air bag back-up power, and the supplemental air bag igniters.

The driver air bag is in the center of the steering wheel and is indicated by the letters "SRS." The right front passenger seat air bag is in the upper right-hand section of the instrument panel ledge above the glove compartment. The letters "SRS" appear there.

81





The location of the air bag and warning labels

The air bag system uses a readiness light and a tone to indicate the condition of the system. The readiness light is in the instrument cluster. When you turn the ignition to the ON position, this light will illuminate for approximately six (6) seconds and then turn off. This indicates that the system is operating normally. **NOTE:** Maintenance of the air bag system is not required.



Air bag readiness light

**Warning:** A problem with the system is indicated by one or more of the following: the readiness light will either flash or stay lit, or it will not light, or a group of five beeps will be heard.

If any of these things happen, even intermittently, have the air bag system serviced at your Ford or Lincoln-Mercury dealer immediately.

### **Tone generator**

The air bag readiness light indicates the air bag system condition. However, a series of five sets of five beeps will be heard only if the readiness light does not work and there is a problem with the air bag system. This also means that the Air Bag Supplemental Restraint System (SRS) is in need of service. The tone pattern will repeat (five sets of five beeps) periodically until the problem and light are repaired. Unless serviced, the Air Bag Supplemental Restraint System may not function properly in the event of a collision.

**Warning:** Do not attempt to service, repair, or modify the Air Bag Supplemental Restraint System; tampering could cause activation of the system and increase the risk of personal injury. **DO NOT REPLACE OR OTHERWISE TAMPER WITH THE AIR BAG FUSES.** For servicing of the Air Bag Supplemental Restraint System, see your Ford or Lincoln-Mercury dealer.



The air bag system is designed to stay out of sight until it is activated. The air bag system is designed to deploy in frontal and front-angled collisions more severe than hitting a parked vehicle (of similar size and weight) head-on at about 28 mph (45 km/h). Because the system senses the crash severity rather than vehicle speed, some frontal collisions at speeds above 28 mph (45 km/h) will not inflate the air bag.

The system activates when the sensors detect a forward deceleration equal to or greater than the deceleration experienced if you would drive your vehicle into a solid wall at 14 mph (23 km/h).

In some side impacts, the forward deceleration of your vehicle can be great enough to deploy your air bag.

The following four steps show how the air bag system works:

1. Sensors in the vehicle will detect the degree of severity of a frontal impact. When the sensor system is activated, electric current flows to the inflator and the system ignites the gas generant.
2. The propellant then rapidly burns in the metal container. The rapid burning produces nitrogen gas and small amounts of dust. The nitrogen gas and dust are cooled and filtered during inflation of the air bag.
3. The inflating supplemental air bags split open the trim covers. The supplemental air bags then rapidly unfold and inflate in front of the driver and right front seat passenger.

**NOTE: STEPS 1-3 TAKE PLACE IN A FRACTION OF A SECOND.**

4. After inflation, the gas empties through holes in the air bag. The air bag deflates at once.

The surface of the air bags and the vehicle interior may be dusted with a powdery residue. The powder is cornstarch or talcum powder, which is used to lubricate the air bag as it inflates, and sodium compounds such as sodium carbonates (e.g., baking soda), and possibly a very small amount of sodium hydroxide that may be irritating to the skin and eyes, but is not toxic.

Right after air bag inflation, you may notice smoke (from the powder and dust) and smell the burnt propellant. This is normal.

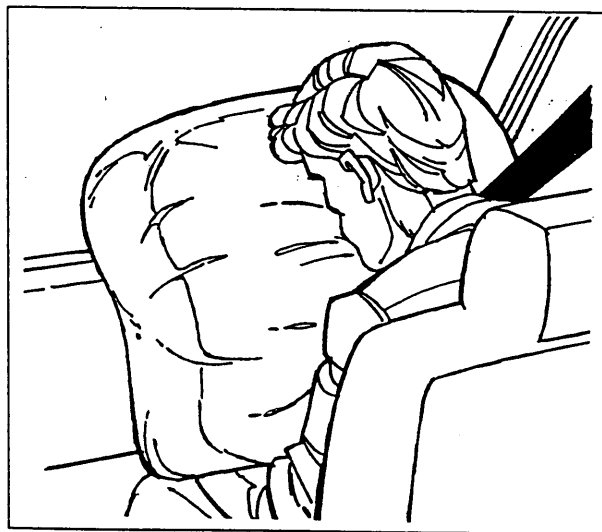
**Warning:** Several air bag system components get hot after inflation. Do not try to touch them after inflation.

Air bags may not inflate in certain frontal collisions, even though the vehicle may be badly damaged. The fact that your air bag did not inflate in such a collision does not mean that something is wrong with the air bag system. Rather, it means the crash forces were not severe enough to need an air bag to prevent serious injury.





Inflated driver-side air bag



Inflated passenger-side air bag

**Warning:** The air bag will inflate only once. The system is designed to function on a one-time-only basis. If the air bag is inflated, **THE AIR BAG WILL NOT FUNCTION AGAIN AND MUST BE REPLACED IMMEDIATELY.** If the air bag is not replaced, the unrepaired area will increase the risk of injury in a collision.

#### *Disposal of supplemental air bag equipped vehicles*

For disposal of air bags or air bag equipped vehicles, see your local Ford or Lincoln-Mercury dealer, or refer to the procedures in the 1995 Ford Service Manual. Information on how to order a service manual is available at an authorized Ford or Lincoln-Mercury dealer. You can also order a service manual using the order form in the *Accessories* chapter of your Owner Guide.

#### *Service and information labels*

Service and information labels are attached to the sun visor, on the headliner above the driver's sun visor (Canadian vehicles), and near the radiator support in the engine compartment.



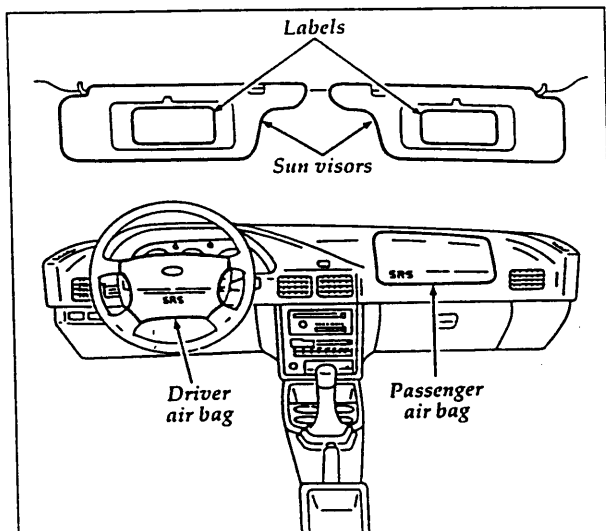
**⚠ WARNING**

DO NOT TAMPER WITH OR DISCONNECT THE AIR BAG SYSTEM WIRING. You could inflate the bag(s) or make it inoperative which may result in injury. See Shop Manual.

**⚠ AVERTISSEMENT**

NE PAS MANIPULER NI DÉBRANCHER LE CÂBLAGE ÉLECTRIQUE DU DISPOSITIF D'UN COUSSIN DE SÉCURITÉ. Cela pourrait gonfler le coussin de sécurité ou le mettre hors service et entraîner des blessures. Voir le manuel de réparation. XXXX-XXXXXX-XX

Label on the radiator support in the engine compartment



Location of air bag labels

**AIR BAG**  
See Other Side

**CAUTION** TO AVOID SERIOUS INJURY:

- For maximum safety protection in all types of crashes, you must always wear your safety belt.
- Do not install rearward-facing child seats in any front passenger seat position.
- Do not sit or lean unnecessarily close to the air bag.
- Do not place any objects over the air bag or between the air bag and yourself.

See the Owner Manual for further information and explanations.

Labels located on visors

## Safety Restraints for Children

In the U.S. and Canada, you are required by law to use safety restraints for children. If small children ride in your vehicle — this generally includes children who are four years old or younger and who weigh 40 pounds (18 kg) or less — you must put them in safety seats that are made specially for children. Safety belts alone do not provide maximum protection for these children. Check your local and state laws for specific requirements.

**Warning:** Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.



**Warning:** Never let children ride in the cargo area of your vehicle. Make sure they sit where they can be properly restrained. If they are not restrained the risk of their being injured in a collision greatly increases.

**Warning:** When using any infant or child restraint system, it is important that you follow the instructions and warnings provided by the manufacturer concerning its installation and use. Failure to follow each of the manufacturer's instructions could increase the risk of, or the severity of an injury in the event of a collision or sudden stop.

**Warning:** Never leave a child unattended in your vehicle. Always remove the key from the ignition and take it with you.

Safety belts and seats can become hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check seat covers and buckles before you place a child anywhere near them.

**Warning:** Rear-facing infant seats should never be placed in the front seat. In rear-facing infant seats, the infant's head is closer to the passenger air bag. The force of the rapidly inflating air bag could push the top of the rear-facing seat against the vehicle seatback. REAR-FACING INFANT SEATS MUST ALWAYS BE SECURED IN THE REAR SEAT.

**Warning:** When possible, use children in the rear seat of your vehicle. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating positions.

**Warning:** Your vehicle is equipped with a right front passenger air bag. Air bags deploy with great force, faster than the blink of an eye. Front passengers, especially children and small adults, must never sit on the front edge of the seat, stand near the glove compartment of the instrument panel, or lean over near the air bag cover when the vehicle is moving. All occupants should sit with their backs against the seatback, move the seat to the most rearward position if possible and use the safety belts. Children weighing less than 40 lbs. (18 kg) always should use child or infant seats. When using forward-facing child seats move the passenger seat as far back from the instrument panel as possible. NEVER SECURE REAR-FACING INFANT SEATS IN THE FRONT SEAT, BECAUSE THE FORCE OF THE RAPIDLY INFLATING PASSENGER AIR BAG COULD PUSH THE TOP OF THE REAR-FACING SEAT AGAINST THE VEHICLE SEATBACK, ARMRESTS OR CONSOLE. REAR-FACING INFANT SEATS MUST ALWAYS BE SECURED IN THE REAR SEAT. Failure to follow these instructions could result in serious injury.



The lap belt or the lap belt portion of lap and shoulder belts should always be worn snugly and below the hips, touching the child's thighs.

Always drive and ride with your seatback upright and the lap belt snug across the hips to reduce the risk of serious injury to the abdomen or neck that could be caused by sliding under the safety belt in a collision.

### Safety Seats for Children

Use a safety seat that is recommended for the size and weight of the child. Always follow the safety seat manufacturer's instructions when installing and using the safety seat.

Ford recommends the use of a child safety seat having a top tether strap. Install the child safety seat in a seating position which is capable of providing a tether anchorage. For more information on top tether straps see *Attaching Safety Seats With Tether Straps* in this chapter.

When installing a child safety seat, be sure to use the correct safety belt buckle for that seating position, and make sure the tongue is securely fastened in the buckle.

In rear-facing infant seats, the infant's head is closer to the passenger air bag. The force of the rapidly inflating air bag could push the top of the rear-facing seat against the vehicle seatback. **REAR-FACING INFANT SEATS MUST ALWAYS BE SECURED IN THE REAR SEAT,** and other child seats and infant seats should be secured in the rear seat whenever possible. Forward-facing child seats used in the front seat must have the passenger seat moved as far back from the instrument panel as possible.

**Warning:** All child restraint systems are designed to be secured in vehicle seats by lap belts or by the lap portion of a lap-shoulder belt. If you do not properly secure the safety seat to the vehicle, the risk is greater that a child, occupying the seat during a collision or sudden stop, will be injured. An unsecured safety seat could also injure other passengers in the vehicle.

Carefully follow all of the manufacturer's instructions that come with the safety seat that you put in your vehicle. Make sure that the shoulder belt does not cross or rest in front of the child's face or neck. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

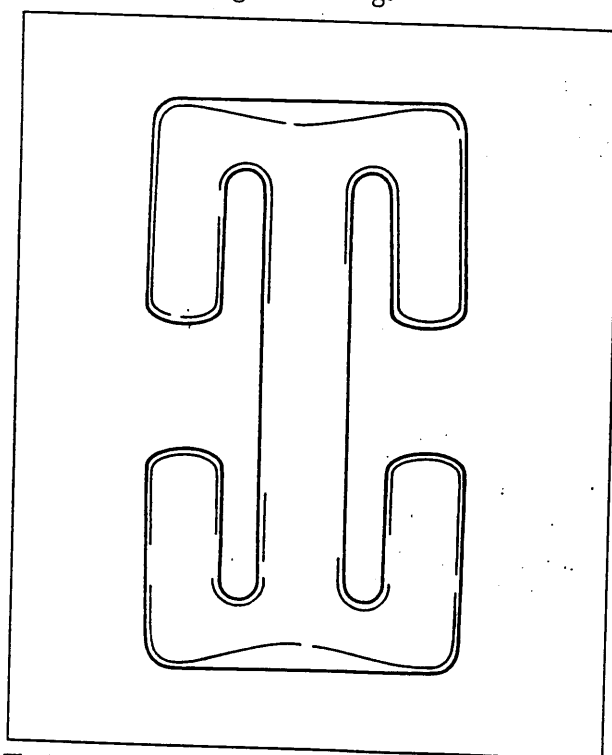
**Warning:** Rear-facing infant seats should never be placed in the front seat. In rear-facing infant seats, the infant's head is closer to the passenger air bag. The force of the rapidly inflating air bag could push the top of the rear-facing seat against the vehicle seatback. **REAR-FACING INFANT SEATS MUST ALWAYS BE SECURED IN THE REAR SEAT.**

**Warning:** If a child safety seat is positioned in the right front passenger seat of a vehicle equipped with motorized front shoulder belts, the child seat must be secured with the lap belt which is also provided in this seating position. The motorized shoulder belt **cannot** be used to secure a child safety seat. Use the lap belt with a locking clip to secure the child seat.



**Warning:** A locking clip must be used to properly secure a safety seat with the manual lap belt of the motorized passive restraint system. It also must be used with the combination lap and shoulder belt with the fixed tongue found in Canadian vehicles. See your dealer to obtain a locking clip.

If you do not use a locking clip, injuries could result from the child seat tipping over during normal braking or turning.



The Ford locking clip (actual size)

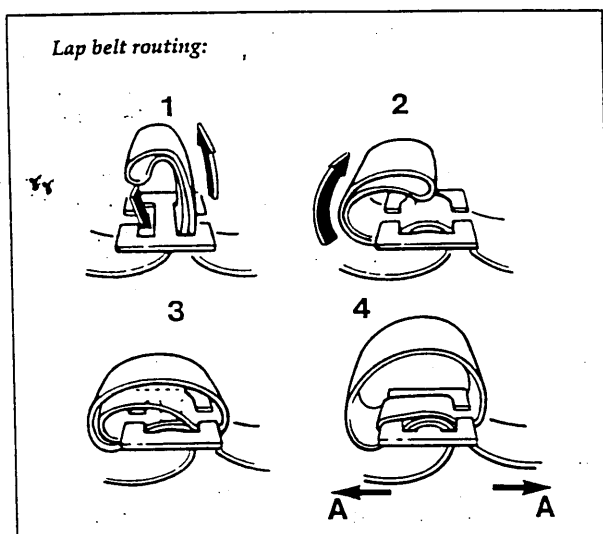
**Warning:** Use only a genuine Ford locking clip or equivalent to shorten the lap belt. Locking clips designed only to keep a sliding tongue from sliding along a lap-shoulder belt may bend and release the belt when used to shorten a lap belt in this way. Do not use a locking clip supplied with a child seat to shorten a lap belt unless instructions with the child seat tell you to do so.

Non-Ford locking clips are smaller and are not strong enough to hold a lap belt with a fixed tongue.

Disconnect the shoulder belt from the emergency release buckle by pressing the red button. Allow the belt to fully retract. The seat belt warning light will remain on while the shoulder belt is disconnected. Be sure to reconnect the shoulder belt after the child seat or infant carrier is removed.

1. Slide the seat to the rearmost position.
2. Position the child safety seat in the front seat of the vehicle. Fasten the child safety seat with the lap belt following the child safety seat manufacturer's instructions.
3. Pull the lap belt out fully.
4. Remove any slack from the lap belt with the locking clip (as shown in the illustration) at any convenient point in the lap belt. Make the outer loop as big as possible to tighten the locking clip.
5. After installing the locking clip, pull on the belt, as shown by "A" in the illustration, to make sure that it does not slip.





Adjusting the lap belt with the locking clip

**Warning:** Once you have attached the safety seat, test the seat before you place the child in it. Tilt the seat from side to side. Also try to tug the seat forward. Check to see if the belt holds the seat in place. If the lap belt is too loose, tighten it by moving the locking clip, or put the safety seat in another seat and test it again. If the safety seat is not anchored properly, the risk of a child being injured in a collision or sudden stop greatly increases. Reclining seatbacks should be in the most upright position for use with child safety seats.

### Installing a Child Safety Seat using a Locking Clip (For lap and shoulder belts with sliding tongues)

The locking clip must be used to secure a child seat when your vehicle has a shoulder and lap belt with a sliding tongue. Every Ford and Lincoln-Mercury safety belt that requires a locking clip is identified on the belt, with the label as shown in Figure 1. The locking clip is installed on a sample piece of webbing.

Obtain the locking clip kit at no charge from an authorized Ford or Lincoln-Mercury dealer (Base part number 61248).

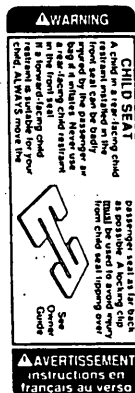


## Safety belt locking clip labels

CHILD SEAT  
PORTE-BEBE

A locking clip must be used to avoid injury from child seat tipping over. See Owner Guide.

Pour éviter que le porte-bébé bascule et blesse l'enfant, il faut utiliser une sangle de blocage. Consultez le Guide du propriétaire.



Rear seat label

Front passenger seat label  
for vehicles not equipped with  
a dual locking mode retractor

Slots



Locking clip

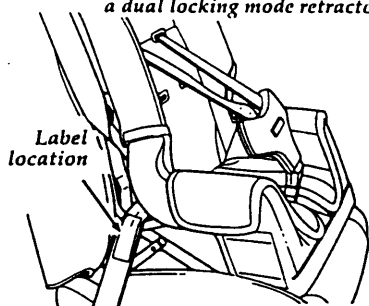


Figure 1

**Warning:** If you do not use a locking clip, injuries could result from the child seat tipping over during normal vehicle braking or cornering.

## To install the locking clip

1. Thread the belt webbing through the child seat according to the child seat manufacturer's instructions.
2. Buckle the safety belt.

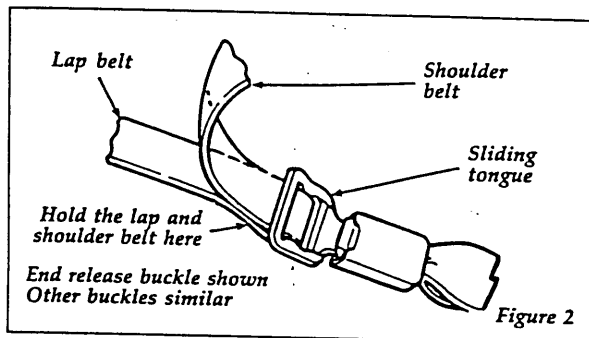


Figure 2

3. Pull on shoulder portion of the belt to make the lap portion fit snugly. Keeping the lap belt snug, hold the lap and shoulder belt portions of the webbing together next to the sliding tongue and unbuckle the seat belt, Figure 2.

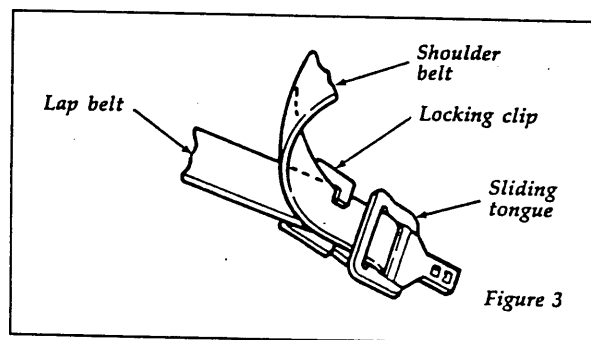
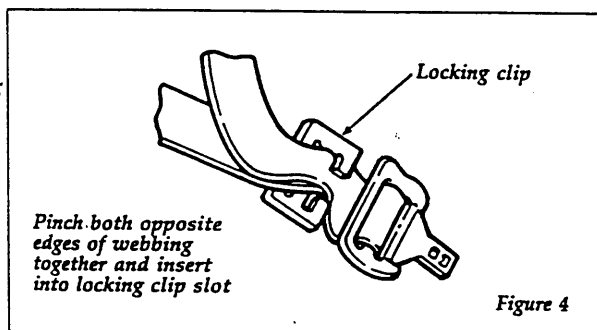


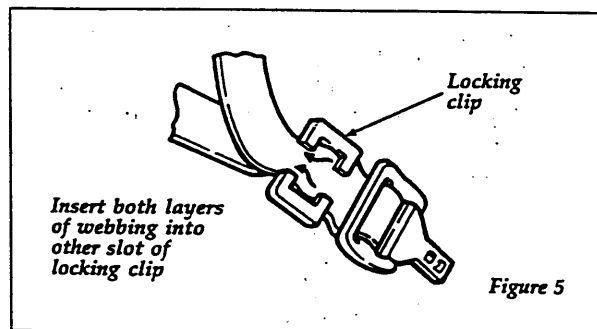
Figure 3



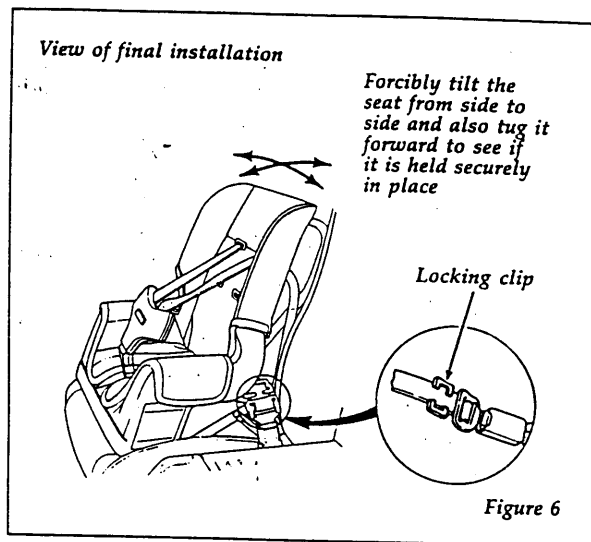
4. Slide either corner of the locking clip slot closest to the tongue over both layers of webbing as shown in Figure 3.



5. Pinch both opposite edges of webbing together and insert them into the locking clip slot as shown in Figure 4.



6. Pinch both layers of webbing together and insert into other slot of locking clip, Figure 5.



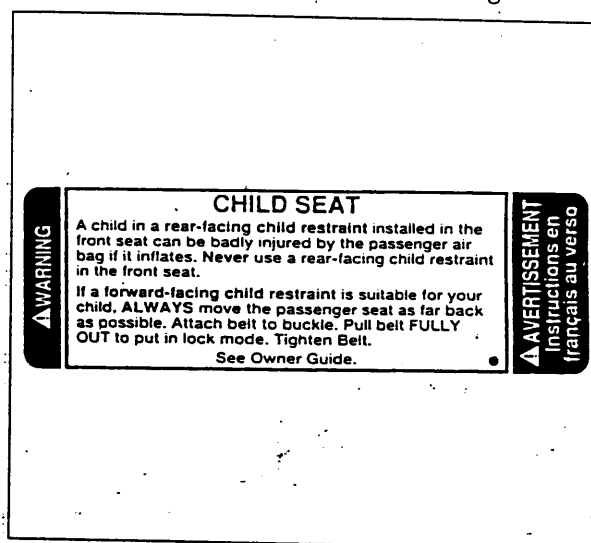
7. Re-buckle belt. Forcibly tilt the child seat from side to side and also tug it forward to see if it is held securely in place, Figure 6. If excessive movement occurs, repeat steps 2 through 7 or properly install child seat in a different seating position in the vehicle.



**Warning:** Once you have attached the safety seat, test the seat before you place the child in it. Tilt the seat from side to side. Also try to tug the seat forward. Check to see if the belt holds the seat in place. If the lap belt is too loose, tighten it by moving the locking clip, or put the safety seat in another seat and test it again. If the safety seat is not anchored properly, the risk of a child being injured in a collision or sudden stop greatly increases. Reclining seatbacks should be in the most upright position for use with child safety seats.

### Installing Safety Seats in the Front Seat (U.S. vehicles and Canadian 4-door sedan, 4-door hatchback and wagon vehicles)

If your vehicle is equipped with a dual locking mode retractor on the lap belt (U.S. vehicles) or the lap belt portion of the lap/shoulder belt (Canadian vehicles) for the front passenger seat, the lap belt will have the following label:



The automatic locking mode must be used when installing a child seat in the front passenger seat.

If you choose to install a forward-facing child safety seat in a front seat with a dual locking mode retractor:

1. Move the front passenger seat as far back as possible.



2. Position the child seat in the front passenger seat of the vehicle.
3. Follow the child seat manufacturer's instructions. Route the lap or lap/shoulder belt through the child seat and insert the belt tongue into the buckle until you hear and feel the latch engage.

Be sure to follow the manufacturer's instructions for belt routing.

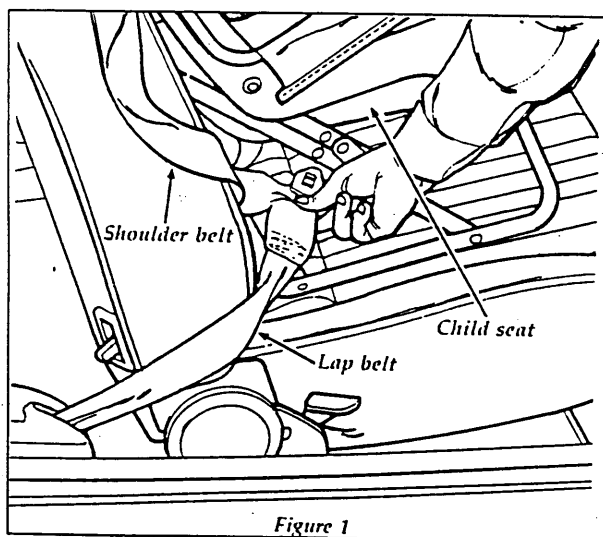


Figure 1

Routing the lap or lap/shoulder belt

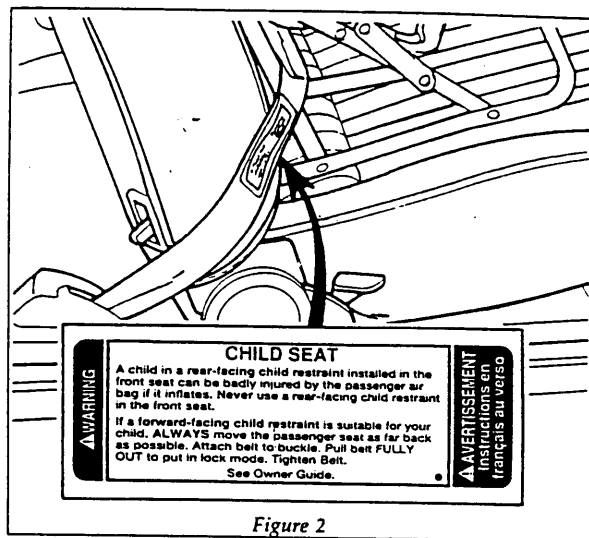
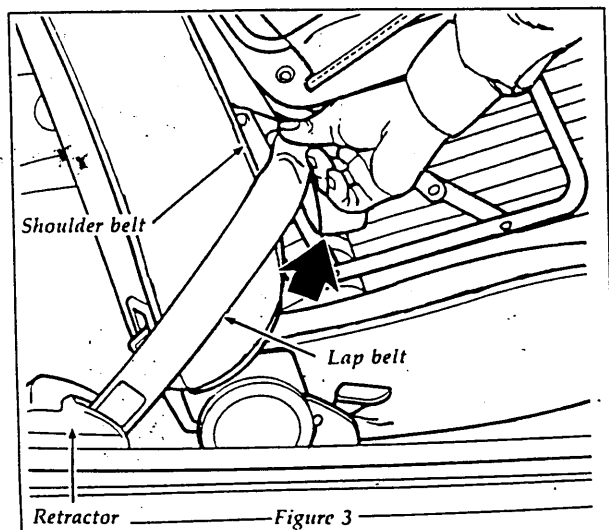


Figure 2

Lap/shoulder belt child seat label

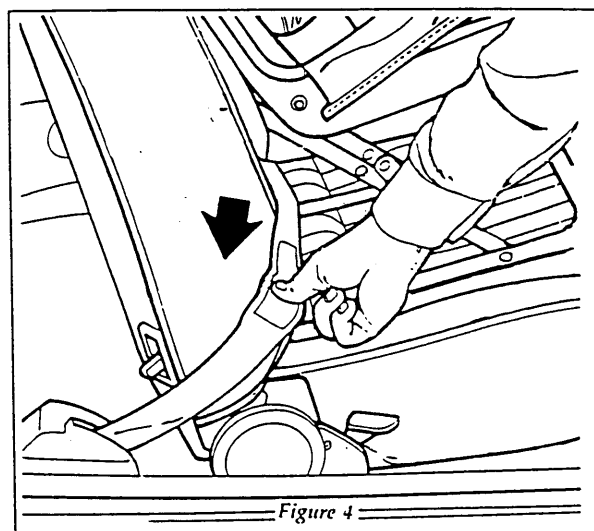
4. Grasp the lap portion of the belt below the child seat label. Pull upward until all of the belt is extracted and a click is heard. At this time, the lap belt retractor is in the automatic locking mode (child seat restraint mode).





Pull the lap belt out completely to set the automatic locking mode.

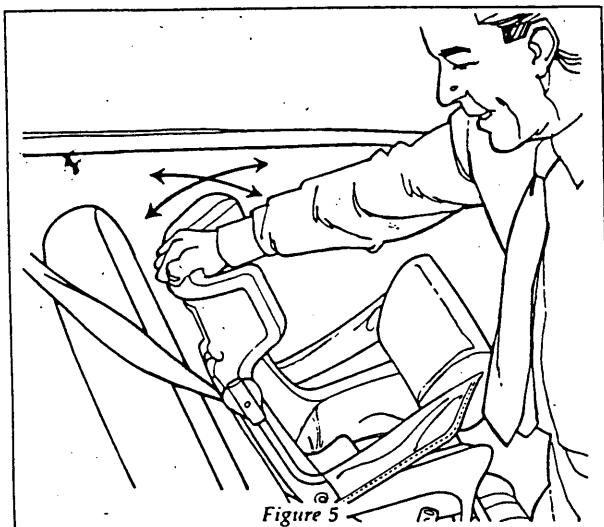
5. Allow the belt to retract. A clicking sound will be heard as the belt retracts. This indicates the retractor is in the automatic locking mode. Push down on the child seat while you pull down on the belt to remove any slack in the belt.



Removing slack from the belt

6. Before placing the child in the child seat, forcibly tilt the seat from side to side, and also tug it forward to make sure that the seat is securely held in place.





Checking that the seat is secure

7. Double check that the retractor is in the automatic locking mode. Try to pull more belt out of the retractor, if you cannot, the belt is in the automatic locking mode.

8. Check to make sure that the child seat is properly secured prior to each use. If the

When the seat belt is buckled and locked, the seat belt will lock in the vehicle. See the detailed instructions under Front Passenger Lap Belt Retractor in this chapter.

### Installing Child Safety Seats at the Rear Outboard Seating Positions (For lap and shoulder belts with cinch tongues)

If your vehicle is equipped with rear seat safety belts containing a cinch tongue, the rear outboard safety belts will have the following label:

#### When fastening

#### **CHILD SEAT:**

1. Attach belt to buckle.
2. Tighten belt. (See Owner Guide.)

#### Pour attacher le

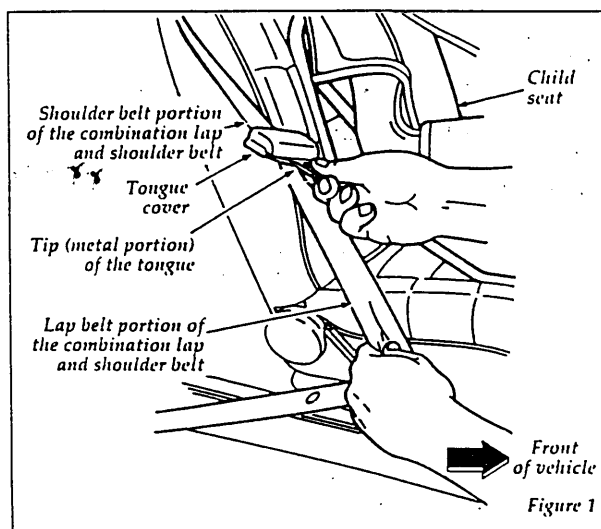
#### **PORTE-BÉBÉ:**

1. Insérer la languette dans la boucle de la ceinture.
2. Serrer la ceinture. (Voir le Guide du propriétaire.)

If you install a child safety seat in a rear outboard seating position with a combination lap and shoulder belt with cinch tongue, use the following procedure:

Grasp the belt webbing below the tongue and pull as much of the belt out of the retractor as possible. Hold the belt out. See Figure 1.

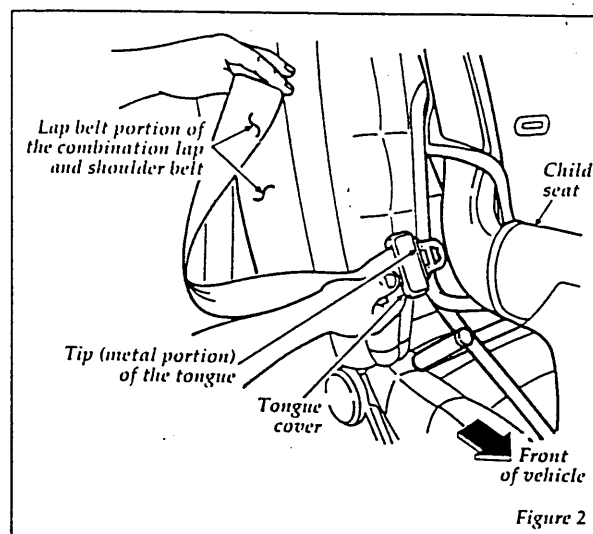




**NOTE:** The belt webbing below the tongue is the lap belt portion of the combination lap and shoulder belt, and the belt webbing above the tongue is the shoulder belt portion of the combination lap and shoulder belt.

2. With your other hand, grasp the tip (metal portion) of the tongue (not the cover) and slide the tongue up the webbing as far as it will go. See Figure 1. Release the tongue, but do not let go of the lap belt webbing.
3. While holding the lap belt webbing in one hand, use your other hand to pinch the tip (metal portion) of the tongue and belt webbing together and again pull out as much of the belt as possible. Then, let go of the lap belt webbing.

4. Route the tongue and webbing through the child seat according to the child seat manufacturer's instructions. See Figure 2. Be sure that the belt webbing is not twisted. If so, remove the twist. (For instructions on how to remove a twist, see the *Procedure to Correct a Rotated Tongue on the Safety Belt* section in this chapter.)



5. Insert the belt tongue into the proper buckle for the seating position until you hear a snap and feel it latch. Make sure the tongue is securely fastened to the buckle. Let go of the belt webbing. See Figure 3.



9. Check from time to time to be sure that there is no slack in the lap/shoulder belt. The shoulder belt must be snug to keep the lap belt tight during a collision.

#### **Installing a Child Safety Seat at the Rear Center Seating Position (For all vehicles)**

1. Lengthen the lap belt. To lengthen the belt, hold the belt tongue at a right angle to the belt webbing. Slide the tongue up the webbing.
2. Place the child safety seat in the center seating position.
3. Route the tongue and webbing through the child seat according to the child seat manufacturer's instructions.
4. Insert the belt tongue into the proper buckle for the center seating position until you hear a snap and feel it latch. Make sure the tongue is securely fastened to the buckle.
5. Push down on the child seat while pulling on the loose end of the lap belt webbing to tighten the belt.
6. Forcibly tilt the child seat from side-to-side and tug the seat forward to ensure that the seat is held securely in place. If the child seat moves excessively, repeat steps 5 through 6 or properly install the child seat in a different seating position.

#### **Attaching Child Safety Seats with Tether Straps (For all vehicles)**

Some manufacturers make safety seats that include a tether strap that goes over the back of the vehicle seat and attaches to an anchoring point. Other manufacturers offer the tether strap as an accessory. Contact the manufacturer of your child safety seat for information about ordering a tether strap.

**Warning:** Use tethered safety seats in a rear seating position with the tether strap attached to the tether anchoring point as shown in this guide.

**Warning:** Failure to follow these precautions could increase the risk and/or severity of injury in a collision.

If you use a tethered safety seat on the right front passenger seat, hook it to the tongue of the rear center lap belt.

If you use a tethered safety seat in the rear seat, you may place it in either the right, left, or center seat position and anchor it to the appropriate tether anchor behind that seating position.

#### ***Tether anchor hardware (Canadian vehicles only)***

All vehicles built for sale in Canada include a tether anchor hardware kit for use with Canadian child safety seats. Attachment holes (at each rear seating position) have been provided in your vehicle to attach the anchor hardware, if required. Additional kits can be obtained at no charge from any Ford or Lincoln-Mercury dealer.

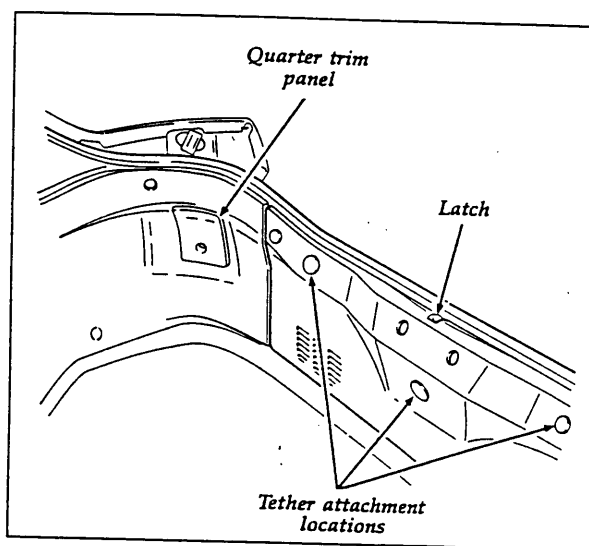


***Tether anchor hardware (USA vehicles only).***

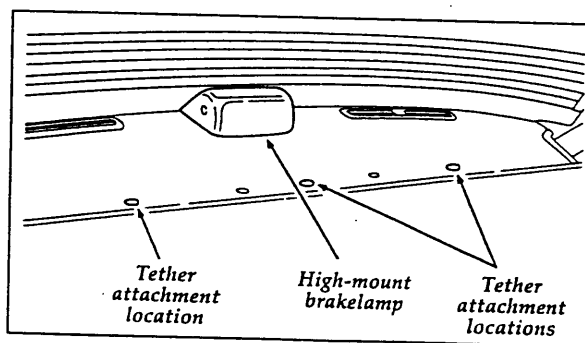
Vehicles built for sale in the USA do not include a tether anchor hardware kit for use with child safety seats. However, attachment holes (at each rear seating position) have been provided in your vehicle to attach the tether anchor hardware. Tether anchor hardware kits can be obtained at no charge from any Ford or Lincoln-Mercury dealer.

To attach the tether anchors in the 2-door hatchback, 4-door hatchback, and wagon models, remove the trim plugs covering the access holes (at the locations shown) by prying them out with a screwdriver. On the 4-door sedan model, holes have to be cut through the package tray (at the locations shown) to attach the tether anchors. The package tray trim panel has visible markings at these locations showing where to cut the holes. (See the appropriate illustration.) A sharp knife is recommended for cutting through the panel.

Install the hardware for anchoring the tether following the instructions that come with the tether anchorage hardware kit.



Tether attachment locations in the 2-door hatchback and 4-door hatchback models



Tether attachment locations for the 4-door LX model



**ATTACHMENT H**

**Cosco Touriva Instructional Manual**



Eng.

## READ AND SAVE THESE INSTRUCTIONS

### IMPORTANT!

You must follow the instructions for this child restraint exactly or you will increase your child's risk of injury or death.

- Refer to your vehicle owner's manual for additional instructions regarding proper use of this child restraint with your vehicle.

- If you have any questions, call [REDACTED]

- Before you use this child restraint, you must read the entire booklet so you understand how to use it correctly. To help you recognize those instructions which are most critical for your child's safety, we use the following symbol:

### WARNING: URGENT SAFETY INFORMATION



Failure to follow these instructions creates a dangerous situation that is likely to result in serious injury or death for your child in the event of a crash or sudden stop.

No one can predict if use of a child restraint will prevent injury or death in a particular crash. However, combined with careful driving, proper use of a child restraint can reduce a child's risk of injury or death in most crashes.

Your child is worth the time it will take to read and follow these instructions. If after reading these instructions you still have questions, please contact [REDACTED]



### General Information

This child restraint is designed for use by children weighing up to 43 pounds (19.5 kg) whose height is 42 inches (107 cm) or less. This child restraint has been dynamically "crash tested" and conforms to all applicable Federal Motor Vehicle Safety Standards (FMVSS 213) in effect on the date of manufacture.

### Recall information

Child restraints could be recalled for safety reasons. You must register this restraint to be reached in a recall. Send your name, address and the restraint's model number and manufacturing date to [REDACTED]


IN [REDACTED] Attn: [REDACTED]  
Consumer Relations or call [REDACTED]. For recall information, call the [REDACTED] Safety Hotline at [REDACTED] in the [REDACTED] area.) For car seat parts and service, call [REDACTED]



Index	Page
General warnings.....	2
Special Features (some models).....	3
Getting ready to use your <b>TM</b> .....	4
To recline .....	4
To change harness location .....	4
Putting your child in the restraint.....	5
Will your vehicle belts work with this child restraint? .....	6
Do you have a manual belt? .....	7
Do you need a locking clip? .....	8

Index	Page
Vehicle installation--Infant up to 20 pounds (9 kg) .....	9
Vehicle installation--Toddler 20-43 pounds (9-19.5 kg) ....	10
Double check .....	11
Replacement parts .....	11
Cleaning instructions.....	12
For warm weather.....	12
Aircraft installation.....	12

## GENERAL WARNINGS

1.  This child restraint is for children who weigh less than 43 pounds (19.5 kg) whose height is 42 inches (107 cm) or less.
  2. According to Federal government safety standards, for maximum protection, the center rear seating position is the safest position in most vehicles for installing a child restraint. If there is no lap belt in the center rear seat, the use of either of the other rear seating positions is recommended.
  3. Use the child restraint only on forward facing vehicle seats.
  4. Do not use on any vehicle seat that pivots or has a back that folds forward unless the seat has a lock. (See vehicle owner's manual.)
  5. Check your vehicle seat belts before each use. Use only if the vehicle lap belt can be tightened properly and securely.
  6. This child restraint should be securely belted in the vehicle even when not in use. In a crash or sudden stop, an unsecured child restraint could injure other occupants.
  7. Do not use a child restraint with damaged or missing parts.
  8. **This child restraint must face the rear of the vehicle when used for infants under 20 pounds (9 kg). Do not use rear-facing in any seat with an air bag; move the child restraint to another seating location where it can be correctly used rear facing.**
  9. Never take your child out of the child restraint or try to tend to your child's needs while the vehicle is moving.
  10. Do not use a child restraint that has been in a crash. It must be replaced.
  11. **does not recommend the use of any child restraint accessories except accessories.**
  12. Check instructions for other warnings.
- Parents are a child's first teachers and examples. If you always buckle your seat belt, your child will think it is the natural thing to do. Make it a firm rule that the vehicle does not go until everyone is buckled up. Make no exceptions.



---

## Special Features (some models)

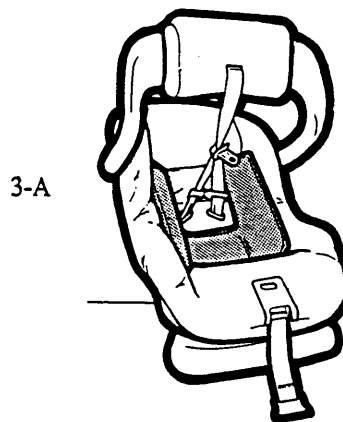
---

The infant support insert is designed to help keep small infants more upright and comfortable. It fits behind your infant and can be removed for older infants and toddlers.

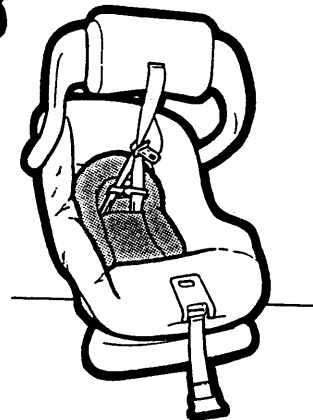
There are two kinds of inserts that come with different models of child restraints. To use insert, place it in the car seat as shown in Figures 3-A and 3-B. For the insert shown in 3-A, one wing goes on each side of the infant with the U-shaped back support section facing up as shown. Do not use insert with U-shape facing down; the performance of the child restraint could be compromised.

Install insert 3-B as shown, making sure that the top end of insert is above the infant's head. Do not allow the infant's head to come over the top inside of the insert; if this happens, your infant is too large for the insert and you should discontinue its use. Make sure insert does not cover your infant's face in any way. When rethreading the harness, it must go through the slots in the insert as shown.

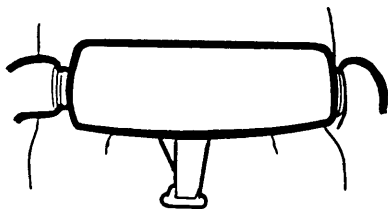
Remove insert for older children and store for future use. Inserts may be machine washed and dried.



3-B



3-C



Some models have an Accu-Just™ shield that automatically pivots to fit your child (Fig. 3-C).



## Getting ready to use your Touriva™

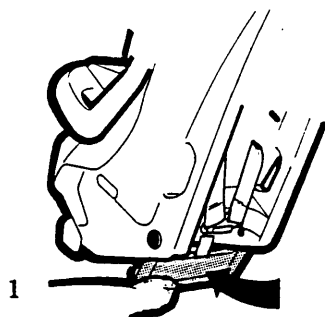
recommends that you make the adjustments on this page before you put your child in the restraint and install it in the vehicle.

### To Use Recline Stand:

#### 4-A Reclined Position

1. Press in on red button on side of seat.
2. Fold recline stand under.

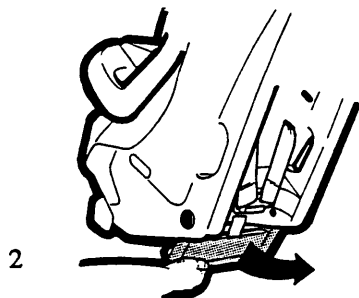
The restraint must be reclined for infants. It may also be reclined for toddlers.



#### 4-B Upright Position

1. Pull recline stand down and back until it locks in place.

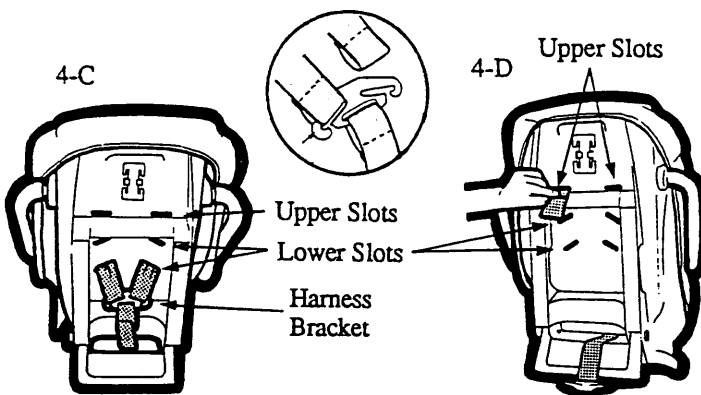
The upright position is for toddlers only.



### To Change Harness Location

The harness must be threaded through one of the two sets of lower slots for rear-facing infant use (under 20 pounds or 9 kg). For forward-facing toddler use (20-43 pounds or 9-19.5 kilograms), the harness MUST be threaded through the upper slots.

In the rear-facing infant position, the correct slots are whichever set of the two lower slots is closer to your baby's shoulders. In the forward-facing toddler position, you **MUST** thread the harness through the top set of slots so that it goes over the reinforcement built into the shell. You must make these changes properly so the harness fits snugly around your child and the child restraint performs properly.



1. Remove both harness straps from the harness bracket (Figure 4-C and inset) and pull both straps through the slots from the front of the child restraint.
2. The slots you select must have plastic harness guides to allow the harness to be properly adjusted. From the back of the child restraint, squeeze the edges of the guides together and pop them out the front. Squeeze into the selected slots from the front.
3. Thread the harness straps through the selected slots from the front. (Figure 4-D). Make sure the harness is not twisted.
4. Refasten the harness straps to the harness bracket (see inset) so they look the same as in Fig. 4-C.



**IF YOU DO NOT FOLLOW THESE INSTRUCTIONS COMPLETELY, YOUR CHILD MAY COME OUT OF THE RESTRAINT IN A CRASH, RESULTING IN SERIOUS INJURY OR DEATH.**

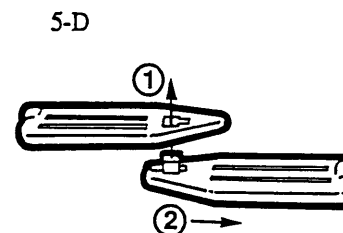
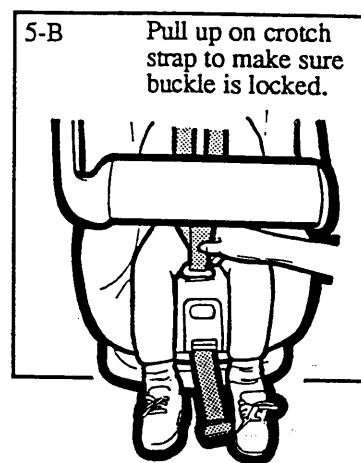
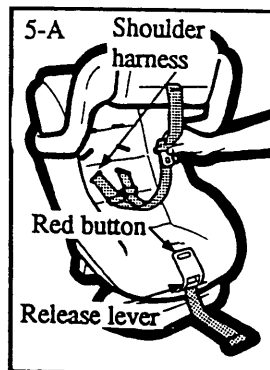


## Putting Your Child in the Restraint

1. Loosen harness by lifting up and holding release lever (Fig. 5-A) while pulling out on shoulder harness. Disconnect the harness retainer by pushing both sections together (see Fig. 5-D). Press red button on buckle to disconnect latch plate. (Fig. 5-A) Lift barrier and place harness straps over the top of the restraint.
2. Place the child in the restraint. Lower barrier while placing harness straps over the child's shoulders. (See picture on cover.) Be sure child's back and bottom are flat against the seat for more comfort and to allow the harness system to be tightened securely. Do not dress an infant in a sack sleeper or wrap an infant in a blanket before securing the harness system, or the harness may not hold the infant securely.
3. Lock latch plate into buckle (Fig. 5-B) until you hear a "click." Pull up on the crotch strap to make sure buckle is locked (Fig. 5-B).
4. To tighten harness, pull on end of harness in front of release lever (Fig. 5-C). The harness should be snug enough so that you can just slip one finger between the harness and the child.
5. To make sure harness is locked, pull out on shoulder harness. If you cannot get the harness to remain tight, do not use the child restraint.
6. Properly locate the harness retainer in a mid-chest position away from the child's neck. Fasten the two sides of the harness retainer together as shown in Fig. 5-D.



**FAILURE TO ADJUST AND FASTEN THE HARNESS SYSTEM CORRECTLY MAY ALLOW THE CHILD TO BE THROWN FROM THE RESTRAINT IN A CRASH, RESULTING IN SERIOUS INJURY OR DEATH.**



Connect sides and pull apart to secure. Reverse process to remove.



## Will Your Vehicle Belts Work With This Child Restraint?



This child restraint must only be used in vehicles having properly installed vehicle lap belt systems that can be tightened securely. If the vehicle belt cannot be tightened securely, it must be replaced for use with a child restraint. Belt systems which will not work with this child car seat (or sometimes any child car seat) include, but are not be limited to, the following:

- **Emergency Locking Retractor (ELR) belts** do not lock until impact, and may allow the child restraint to work loose during normal driving. To see if you have an ELR belt, pull up on the lap belt, let it return part way, then pull on it again. If it locks, it is not an ELR belt. If it doesn't lock, it is an ELR belt. Some ELR belts will convert to usable Automatic Locking Retractor (ALR) belts if you pull the belt all the way out. Refer to your vehicle owner's manual for specific instructions.

ELR lap-only belts must be replaced with a manual belt; contact your vehicle dealer. A locking clip will not correct this problem. ELR lap/shoulder belts either require a locking clip (see page 8) or cannot be used with any child restraint.

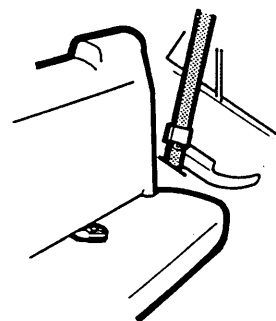
- **Do not use with any automatic/passive vehicle seat belt system.** An automatic (passive) 2-point belt has no lap belt. You must install a lap belt to secure a child restraint. You may also need to install an extra lap belt for an automatic (passive) 3-point belt. Refer to the vehicle owner's manual. A locking clip will not correct this problem. For information on locking clips, see page 8.

- **Do not use rear-facing in any seat equipped with an airbag, no matter what type of seat belt system you have.**

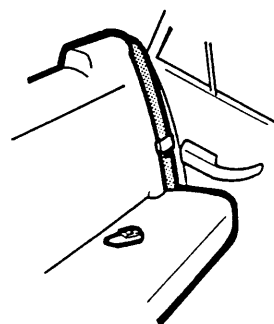
- **If your vehicle belt is too short, contact your vehicle dealer for a seat belt extender. Do not route the seat belt any way except as shown in the instructions.**

(Continued next column)

- **Do not use with seat belts that come out of the door, side of the vehicle or middle of the vehicle seat cushion.** (See diagrams below.) A locking clip will not fix this type belt. For information on locking clips, see page 8.



Belt out of vehicle door/side panel



Belt in middle of vehicle seat



---

## Do you have a manual belt?

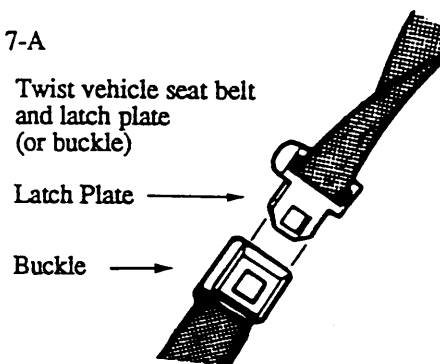
---

Manual vehicle lap belts are common in the center rear seat and can allow the child restraint to loosen when the restraint is tilted or jarred. You should check and adjust a manual belt as follows:



1. After tightening the vehicle lap belt as much as possible, tilt and push the child restraint forward and to both sides.
2. If no loosening occurs, your child restraint should be secure. If you have any doubts, move it to another location where you can tighten the vehicle lap belt securely. If loosening does occur, go to Step 3.
3. If the latch plate slides on the belt, turn the latch plate over. If the buckle slides turn the buckle. Refasten the vehicle lap belt as shown in Fig. 7-A. **The release button should face outward after twisting so that it is easy to reach in an emergency.**
4. Repeat Step 1 to see if the child restraint is secure. If the vehicle lap belt continues to loosen, the child restraint must be moved to another location in the vehicle. **A locking clip will not correct this problem.** For information on locking clips, see page 8.

Fig. 7-A





## Do you need a locking clip?

Before you put your child restraint in the vehicle, buckle the lap/shoulder belt. Pull on the lap belt portion. If it loosens or slips, you must either use a locking clip (Fig. 8-A) to hold the seat belt tight or move the child restraint to another seating location. **NOTE:** A locking clip will not fix ELR lap-only belts, automatic/passive belts, manual belts or belts that come out the door/side panel or middle of the seat cushion. See pages 6 & 7 for information. A locking clip is located on the top back of the child restraint.

### To attach locking clip:

See pages 9 and 10 for complete installation instructions.

1. Thread both vehicle lap and shoulder belts through the proper openings on the child restraint and buckle. Pull up on the shoulder belt until all slack is out and the lap belt is tight. (See Fig. 8-B)
2. Grasp both vehicle belts together just behind the latch plate and unbuckle. (See Fig. 8-B) **Note:** If the latch plate ends up behind the car seat, grasp the belts to the outside of the car seat, as close to the latch plate as possible.
3. Thread both portions of the vehicle belt onto the locking clip. (See Fig. 8-C)
4. Rebuckle the belt. (See Fig. 8-D) The lap belt portion should be tight and hold the child restraint securely. If not, remove the locking clip and repeat all steps.



Failure to use a locking clip when needed will allow the child restraint to move out of position. If you cannot secure the child restraint tightly, move it to another seating location in the vehicle.

Order additional locking clips by sending a check or money order for \$2.50 to [REDACTED], Indiana [REDACTED] (in the U.S.). They may also be available from your local automotive dealer.

Fig. 8-A



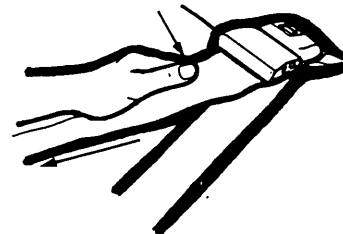
Locking Clip



Latch plate

Fig. 8-B

1. Grasp belts here.



2. Pull up to tighten.

Fig. 8-C

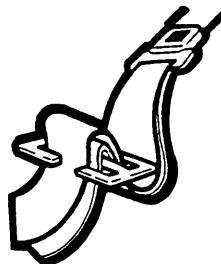
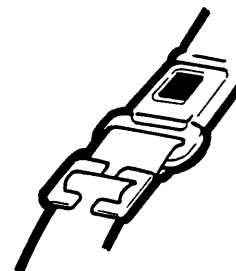



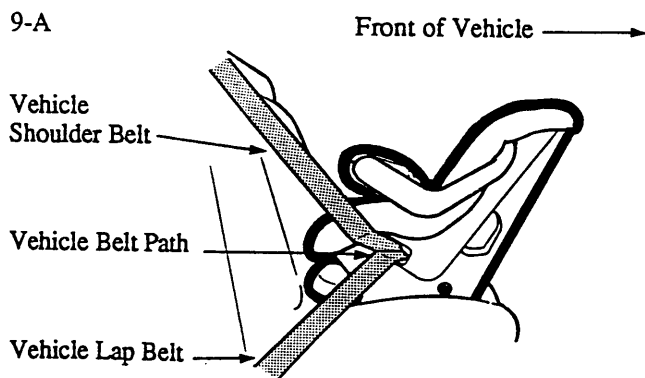
Fig. 8-D



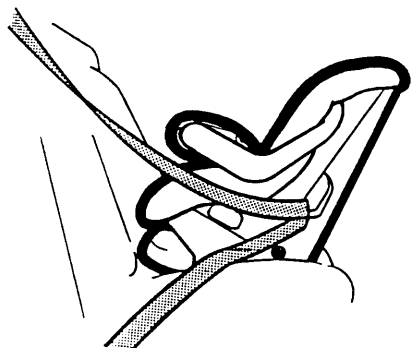


## Infant Installation up to 20 pounds ( 9 kg)



 This child restraint must always face the rear of the vehicle when used in the infant position. This allows the infant's stronger back to absorb any crash forces. Read general warnings on page 2 and seat belt compatibility information on pages 6-8 before installing this child restraint.



9-B Wrong



### To Install:

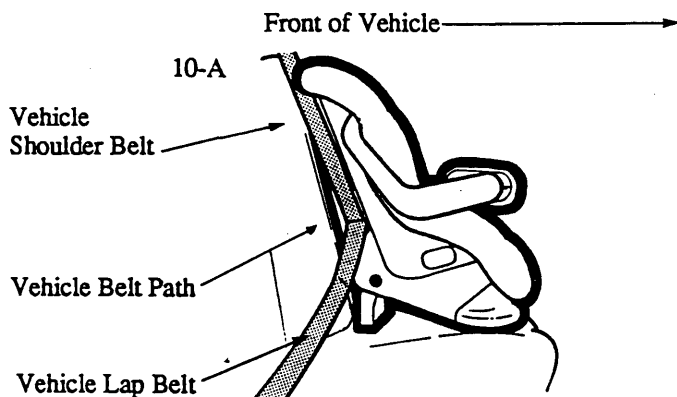
-  1. Infants under 20 pounds (9 kg) must ride in the reclined position facing the rear of the vehicle (Fig 9-A.)
2. You must thread the shoulder harness properly through the correct set of lower slots. (See "To Change Harness Location", page 4).
3. Thread the vehicle lap belt through the front belt path, (Fig. 9-A.), either over or under the upholstery. If the vehicle lap and shoulder belts are attached, thread both through the belt path. Do not place vehicle belt over child's legs.
-  4. Buckle the vehicle belt and adjust as tightly as possible. Push down firmly on the child restraint while pulling up on the shoulder belt until the lap belt is tight.

**Do not use the child restraint in any vehicle seat where the lap belt cannot be tightened securely and properly or where it can be loosened by pulling on it. (See Page 2 and 6-8). Do not use in the rear-facing position in any seating location with an air bag; move the child restraint to a seating location where it can be used rear-facing.**



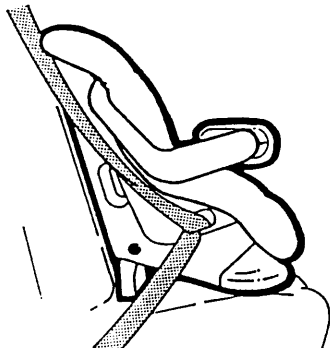
## **Toddler installation 20 to 43 pounds (9 to 19.5 kg)**

In the forward-facing toddler position, the shoulder harness must be threaded through the upper slots. You must change the harness location before installing the seat in the vehicle. See "To Change Harness Location" on Page 4. Read general warnings on page 2 and seat belt compatibility information on pages 6-8 before installing this child restraint.



10-A

**WRONG**



10-B

### **To Install:**

- 1. Toddlers who weigh 20-43 pounds (9-19.5 kg) and are less than 42 inches (107 cm) tall ride facing the front of the vehicle (Fig 10-A.) in either the upright or the reclined position. To change positions, see Page 4.
- 2. Thread the vehicle lap belt through the rear belt path as shown in Fig. 10-A. If the lap and shoulder belts are attached, pass both through the belt path.
- 3. Buckle the vehicle belt and adjust as tightly as possible. Push down firmly on the child restraint while pulling up on the shoulder belt until the lap belt is tight.
- 4. Place your infant in the child restraint. Adjust and secure the harness system as described in "Putting Your Child in the Restraint" on page 7.

**Do not use the child restraint in any vehicle seat where the lap belt cannot be tightened securely and properly or where it can be loosened by pulling on it. (See Pages 2 and 6-8).**



---

## Double Check

---

1. **If your child restraint is not held securely by the vehicle belt:** Press down firmly on child restraint and take out all slack from seat belt. Make sure the seat belt buckle does not hit the child restraint in such a way that the belt cannot be tightened. To see if you need a locking clip, refer to page 8. Check other belt warnings on pages 6 & 7. If you cannot secure the child restraint tightly, move it to another seating location.
2. **If the child restraint buckle or harness adjustment lever sticks: DO NOT LUBRICATE.** Check around adjustment lever and retractor for dropped food, sticky drinks that may have been spilled, dirt or leaves, etc. Remove object with tweezers and/or clean with cotton swab. If you cannot get the harness to adjust and remain tight with the buckle securely locked, do not use the child restraint.
3. **If your infant is sitting too upright in the rear facing position:** If your vehicle seat slopes so much that your infant is sitting upright, you may place a rolled towel under the front of the car seat so that the bottom of the base is level (horizontal). **NEVER** use padding that tilts the car seat farther back than level--the infant can be thrown out of the seat in a crash or sudden stop. Check frequently to make sure the padding is still where it should be and the vehicle belt is tight.
4. **If you cannot get the straps tight enough around child:** See #2 above.

---

## Replacement Parts

---

Many parts for your Touriva™ child restraint can be replaced by contacting [REDACTED] Department. To order parts, call [REDACTED] or write to [REDACTED] Department, [REDACTED], Indiana, [REDACTED]. The model number, date of manufacture and padding color are required. Shipping and handling charges also apply.



---

## Cleaning Instructions

---

Do not use bleach. Do not dry clean or use harsh chemicals. Use of cleaning agents such as these can damage and cause deterioration of the materials.

Wipe plastic, vinyl and metal parts with a damp sponge or cloth. For fabrics, use warm sudsy water. Rinse with clean water and air dry.

The harness system should be cleaned with mild soap and water. Wipe the outside of the buckle with a damp cloth. Do not lubricate buckle or immerse in water.

---

## For Warm Weather

---

Child restraints can become hot in warm weather. To avoid discomfort for your child, please take the following precautions:

1. Park in the shade or in a direction that keeps the sun from shining directly on the child restraint.
2. Cover the child restraint with a sheet or blanket.
3. To prevent burns, feel the child restraint seat and buckles before putting your child in the restraint.

---

## Aircraft Installation

---

Use the child restraint only with F.A.A. certified equipment. This child restraint is installed in an aircraft seat the same way it is installed in the vehicle. Use on forward facing aircraft seats only and in a position where the lap belt can be tightened securely.

Do not place the child restraint next to an emergency exit or on an aisle (row) which contains an emergency exit, or where it can limit access to emergency equipment. The child restraint must not be installed where it will block exit from the aircraft or where it could block access to flight controls.

Contact the airline prior to taking a child restraint on board.